













Vol. I. AUG. 1919. No. II.

# COMMERCE & INDUSTRIES

*The Industrial "Commission has been sitting investigating the opening for the profitable employment of Indian capital in commerce and industry. But we do not want merely Indian capital. We want Indian men, and not Indian men only as labourers, but as leaders who will turn their attention to industrial enterprise and equip themselves for a great industrial regeneration in India. We want to see men devote themselves to scientific research. We want to divert some of the great stream of students which now pours into the channels leading only to the clerical and legal professions, into the channels which will lead to industrial and commercial enterprise. We have now before us the Report of the Industrial Commission which tells us this may be done. I can assure you that in the case of this Report, too, I have no intention of letting its volumes moulder upon our shelves. Action has already been taken upon, and before a year elapses, I hope to see the foundations laid of a scheme for progressive industrial development in India. But let me once more emphasise the point that it is men that we want to do this thing."*—H. E. LORD CHILMSFORD, Dec. 16th, 1918.

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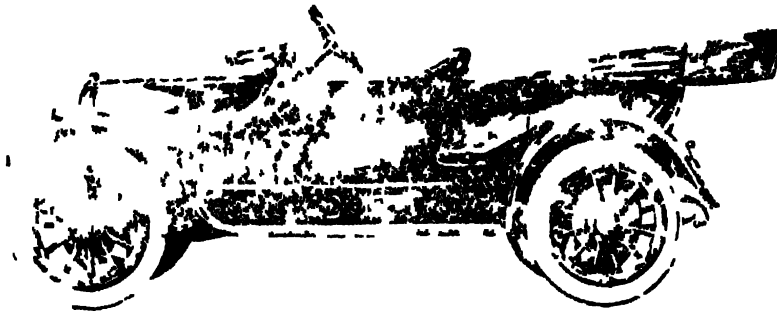
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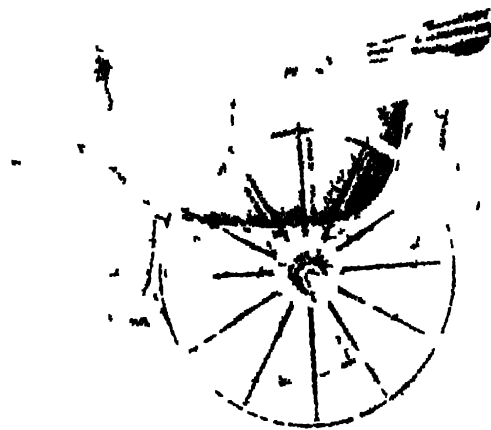
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# "COMMERCE & INDUSTRIES"

Vol. I

AUGUST 1919

No. II.

## COMMENTS OF THE MONTH.

**T**HE past month was full of events calculated some to help, others to hamper, the progress of international commercial intercourse. Two waves of labour unrest passed over Britain. The cotton operatives in Lancashire struck work—and though, happily, they have returned it now, the strike has not been without its influence on the Indian cloth market. Cloth prices, especially those of Manchester, are steady with a tendency to rise. There is, however, no demand, buyers being reluctant to stock at the enhanced prices, especially after the experience of some speculation some time back when a sharp and sudden fall occurred. This reluctance is specially noteworthy and all factors point to a rise rather than a fall in prices.

The other strike wave which passed over Britain related to her coal industry. The country was faced with increased costs and a diminishing output of coal, and it was found that the required quantity of coal would not be forthcoming unless prices were advanced by about 6s. a ton. This rise in prices fell upon labour as well as on others, enhancing their cost of living, and the cry of profiteering was at once raised. Some difference of opinion as to the increase of piece-rate wages of miners upon the basis of the Sankey Report. Labour maintaining that they deserved more than was offered them—provided the lighted match to set fire to the highly combustible material of labour discontent—and the Triple Alliance, comprising of miners, railwaymen and transport workers, spread over the whole of the northern districts, struck work. Thanks to the tact and skill of the Premier, the trouble has ended for the present.

This fact is not without interest and significance to this country—it would be imprudent fully to depend upon Britain for our coal in future, if we are to carry out any substantial programme of industrial development. We note that in the pre-war year 1912-13, we imported 654,000 tons of coal, coke and patent fuel valued at Rs. 1,16,71,000. In war time this steadily declined till it was only 49,000 tons valued at Rs. 15,11,000 in 1916-17. On the other hand, our export of coal, coke and patent fuel which stood at 81,000 tons in 1912-13 valued at Rs. 55,99,000, showed a steady decline in 1913-14 and 1914-15, but thenceforth recovered steadily till it stood in 1916-17 at 832,000 tons valued at Rs. 76,22,000.

Indian coal production has become a substantial proposition in the last two decades or more. Towards the close of the last century, our production of coal amounted, we believe, to something considerably less than five million tons. In 1916-17, it was something over seventeen and a quarter million tons. At present the annual production is well over 19 million tons. Our future in this respect is not after all so gloomy as some think it is. Progress in mining will add to our source of mechanical power, not to mention the immense possibilities of generating hydro-electric energy. Then, it is not without the range of possibility that our oil resources might be more than we think they are. The officers of the Geological Survey are ever on the look out to find out and record possibilities, and in one of the latest Reports of the Survey, some regions in and about Kashmir are reported

to be petroliferous. But these are the regions for daring prospectors and we leave these to them.

To pass on from possibilities and probabilities to actualities, which would be of more immediate interest to the practical businessman, we should notice the discovery of coal deposits on an extensive area in Burma. The Associated Press message which conveyed the news late in the month was too brief to give us an adequate idea of the event. The newspaper comment which accompanied it held out more alluring prospects, though it was not more informing. We prefer to wait for details. By the way, we may point out that Indians should not forget that Burma is an economic complement to India as it is a geographical and historical one—a field which deserves and is in need of all their enterprise. The city of Burma for Burmese has no doubt been set up, but it is bound to fail, if only our businessmen there do not arrogate any position of superiority to themselves. Let them but remember that their country of adoption deserves as much respectful gratitude as their mother country and that the former's children are as much their brethren as their own countrymen and then there will be no trouble.

What we have noted above are not the only noteworthy matters that happened in the month abroad. France was troubled with some labour unrest but matters there though serious at one time, have now become almost normal, so that the country may devote herself to her programme of reconstruction. That programme, let us remember, is no small matter. American correspondents point out that the districts of France once under enemy occupation are virtually deserts. Orchards, fields, factories and workshops which but five years ago beautified them and testified alike to the industrious thrift of the French peasant, the patient skill of French artisans, and the daring, successful enterprise of French entrepreneurs are now in ruins beyond repair, beyond even recognition. However the Reconstruction Board has now set itself to carry out the mighty task of replanting her industries with American credit and American machinery, but it will be some time before she establishes her export industries on a firm footing.

The immediate economic outlook in Germany is at least as bad as, if not considerably worse than, that in France. The British Mission to Germany under Major Bertie discloses a state of things, which is really harrowing, even children are allowed, it appears, to starve, and we are told that German babies three years old, now weighed no more than they did at the end of their first year. There is, however, one difference between the state of things in Germany and that in France and that is that the latter's recuperative powers are insignificant compared with those of the Hun. An acute observer, Canon Parit, has it that Germany is only waiting to see the blockade lifted to resume her trade offensive so prepared she is to push up her productive activities. This is no wonder for her manufacturing districts were not under the occupation of a devastating and rapacious army, her plant, machinery and equipment are practically intact and as they were before the war Germany is a disturbing element in the calculations of entrepreneurs elsewhere and this is a point which renders them nervous about launching big schemes without assured Governmental protection.

The other European States, if struck less hard by the war, still require the support of the greater nations. The countries included in the term South-eastern Europe are more agricultural than industrial, and, as is the case with all agricultural communities, their recuperative powers are greater than those of the manufacturing countries. Rumania, Greater Serbia, Bulgaria, Turkey, Greece, Hungary, Poland and the Baltic States fall within this category. They will have no food problem to face they may even be able to export food. Such is not, however, the case with, say, Belgium, Finland and Czecho-Slovakia. These depend for their food on the export of their manufactures, these countries, however, have been the scenes of terrible warfare, and their manufacturing power is limited, owing to the destruction of their machinery. It requires all the ingenuity and care of the Supreme Economic Council to guarantee them raw materials and food and so to utilise their work as to make them be of the greatest advantage to the world.

Russia is still an uncertain element. The efforts of Britain to help her come to herself

through the castigations administered through Admiral Koltchak have been unavailing, and Britain has determined to let the flames of the Red Peril die out of their own accord, the Allies merely guarding their own houses against its spread. Experience has proved that this policy is the most prudent one. It is one that has been found acceptable to the British nation and it imposes the least burden on them for it obviates the need for a large and costly standing army and a strong navy on a war footing. The resultant demobilisation will provide the much needed labour force to rehabilitate British industries.

The great continent on the Far West to which we must now turn, is just at present faced, so Reuters reports, with a Negro rebellion on an immense scale. The area affected is Chicago. More than a hundred thousand men are, it is said, engaged on either side—the side of the Negroes and that of the white population. The collision is most regrettable, occurring, as it does, in a period of world ferment. The immediate cause of the trouble is said to be the encroachment by the Negroes on what was declared to be a white area. We say *immediately* advisedly, for the Negroes have long standing grievances against the whites. There is no political equality between the two sections of the population.

\* \* \*

The famous Fifteenth Amendment to the United States Constitution guaranteed equality of rights to the Negro, but the legislatures in the various States in whose province lay the determination of the qualification of voters and candidates to the legislature made the amendment a dead letter by prescribing high educational and other qualifications which the Negro lacked. Again, the administration of justice as between the white and the coloured was not quite impartial and Negroes were lynched with impunity. As the Negroes advanced in education and realised their position, they grew furious. It required all the gentle persuasiveness and reasonableness of the great Negro, Dr. Booker T. Washington to keep this combustible material off the lighted match. But Dr. Booker T. Washington is now dead three years. Let us hope the trouble will soon be over.

To pass on from this unpleasant temporary turmoil. The United States is now suffering from over prosperity. Her gold reserves have been considerably over-strengthened by the prevalence of war conditions in Europe. Her proper *role* now is that of the philanthropic minister practising the healing art to a famine-stricken and maimed Europe. That *role* was thus explained by Mr. Hoover, the American Food Commissioner in Europe. "Altogether the dominant problem in the rehabilitation of Europe," he said, "is one wholly of credits with which to buy overseas, and if such finance can be provided, Europe should be on a self-supporting basis within another year. Whether the United States will undertake the third stage in our intervention in Europe must be for Congress to decide. In my own personal view, the largest part of the credits required from the United States should be provided by private credits, and we should, except for certain limited purposes, stop the lending of money by our Government."

"The credits next year," he continued, "are required for business operations, and when Governments are engaged in business they always overspend, and the years to come must be years of economy, not extravagance. I feel that something like half a billion dollars' assistance from the American Government may be needed for us to join with the other Allies in the reorganisation of the currencies of the new States and to take care of some particularly acute and otherwise insoluble situations. On the other hand, much larger sums will be required from private credit for raw material and food, and in order to secure that these private credits to Governments, or specially to individuals, should be established our Government would probably need to consider some further measure of encouragement in this direction. In any event, some solution must be found, or we shall again be faced with starvation in some parts of Europe on a lesser scale next spring, when the forthcoming harvest has been exhausted."

\* \* \*

Mr. Hoover concludes with a warning to the idle and revengeful Europe. "We may have some further political revolution in Europe," he says, "because the social pendulum has not reached a point of stability in some

spots, but in my view the great danger of the Red Terror and destruction by Bolshevism has been greatly mitigated, and will have actually passed in most countries on the signing of peace. If people return to work and orderly government is preserved, fighting stopped, and disarmament undertaken, and if there is no discrimination against the United States in favour of other countries—if these things are done the matter is one of nothing like such enormous figures as we have been handling during the war. If these things are not done, Europe will starve in spite of all we can do. The surplus of our productivity could not support a Europe of to-day's idleness, if every man worked fifteen hours daily."

\* \* \*

In the Far East, Japan is in much the same position as the United States of America. Her war prosperity has been among the most phenomenal enjoyed by any nation. She is not, however, prepared, like the U. S. A., for instance, to play the philanthropist in any way. Since the Armistice, her trade has suffered. She complains that the Indian Government discriminates against her shipping. There are other circumstances besides which make her competition, to the fullest extent, with the rest of the world impossible. American attitude to the Shantung question by which she was not allowed the fullest enjoyment of that province and racial discrimination against her in respect of the League of Nations have made her natural proneness to suspiciousness intense. Japan is therefore sullen and sulky now. We cannot, however, much sympathise with her in her loss of trade for, it is natural that nations which have now been relieved from war operations should engage themselves profitably, and this they could not do if they indiscriminately took in Japanese goods.

\* \* \*

The outlook abroad, then, is complicated by internal unrest and external suspicion. This is not an atmosphere which specially favours commerce and industries. The world must be cleared of revolutionary spirit which is the stepping stone to that detestable state of things which is described by the word Bolshevism. We can only hope that ere long a spirit of reasonableness and compromise will prevail, ushering in an era of quiet prosperity in the world.

There is nothing very striking to record at home. In Calcutta and Bombay, company promotion is going on at a rapid pace. Joint Stock Companies for the manufacture of sugar, of chemicals, of fertilisers and so forth, for the carrying on of insurance business and to forward other enterprises have been formed in large numbers in our sister presidencies. So great has been the activity in these directions that men of sound business instincts have sounded a note of warning against undesirable speculation. Reckless speed is as bad as intolerable inertia, but those who venture, we hope, have discussed all the aspects of their undertakings.

\* \* \*

What troubles our own presidency, however, is not over-enterprise, but the complete absence of it. The report for 1918—19 of the Registrar of Joint Stock Companies, which was issued last month, is sufficient evidence of this. Mr Schmidt, our Registrar, tells this time also the same story that he has been telling us all these years. There was little real business activity in Madras, and what little there was, was confined to the formation of banking and loaning companies. Mr Schmidt reports that some of these associations take undesirable forms, such as certain kinds of club organisations which unduly favour the organiser at the expense of the members. These, he says, should be controlled, and if public credit should not be shaken in banking institutions generally, legislative precautions should be taken against such a calamity befalling on us.

\* \* \*

Are we in for a 2s rupee? The Secretary of State has again raised the exchange from 1s 8d to 1s 10d. This is the fourth time that the exchange has been risen. This is, of course, in accordance with the policy enunciated by Sir William Meyer that the exchange rate would be raised *pro tanto* to the rise in silver, and silver prices have advanced to 58 and odd pence. But, what of the business community? Exporters find it extremely difficult to find cover for their bills. Cover could not be had even at a premium of 1 per cent. When will the Secretary of State realise that it is not so much the rise in exchange that matters as the *regime* of uncertainty that we live under, upsetting all our calculations and paralysing business?

There is one event in our presidency to which we should like to refer and that is the representation of Indian commerce and industries on our Legislative Council. The European community enjoys special representation on the Council through their Chamber of Commerce and the Madras Trades Association. This is perhaps as it should be, having regard to the present conditions. There is, however, no such representation for the Indian mercantile and industrial community. It would be untrue to say that their voice could not or would not be heard in the Council, for, apart from the fact that such a view would be grossly unjust to the Indian members of the Council generally, some members of the commercial community have got into the Council through other constituencies.

There is, for instance, The Hon'ble Diwan Bahadur Theogova Chettiar, the Corporation

member, who happens to be the President of the Southern India Chamber of Commerce as well. He is certainly not the man to neglect our commercial interests, but how can we expect him to concentrate his attention on this matter when the Corporation it is that has returned him? So is the case with The Hon'ble Mr. Yakub Hassan, who is a Moslem representative but surely will not neglect the interests of the Skin and Hide Merchants Association. Then, there is the Hon. Mr. Muthiah Chettiar who is expected to represent indigenous banking interests besides the interests peculiar to his community. The gentlemen and some others are on the Council and let us hope that, in addition to fulfilling their duty to their special constituency, they will be able to see that Indian commercial and industrial interests suffer no neglect.

## EDITORIALS.

### The Outlook.

**J**UST as it has been said that man does not live by bread alone, so may it be said that the well-being of a country does not depend upon political progress only. Material progress is a factor of equal, if not of greater importance to the nation, and in a way it is more difficult of achievement than political progress. It can no doubt be stimulated by the wise, sympathetic and unselfish action of our rulers, but they can do no more than stimulate it at best. It can be attained only by the efforts of those who want to attain it. It is not a concession that we can obtain from others or a boon that can be conferred upon us. It involves the development of some of the finest qualities that any community can be proud of and calls for virtues some of which at any rate we do not happen to possess in abundance. We know that the people of India need rear no comparison in many respects with the peoples of western countries. Nay, in many aspects of national and domestic life, the ideals and practices of the Indian people are distinguished by a higher standard

of ethical excellence. But poverty is no seed-bed of morality, unless when it is very easily imposed and accompanied by high-thinking and is the result of inherited culture and self-restraint.

Poverty in India has been no hindrance to high and noble pursuit in relation to the maintenance in the lowest orders of society of a remarkably high standard of moral obligations. But there is a tolerance of poverty and the endurance that it imposes upon men and women. This limit is being fast recovered in India. Again, the transition from status to contract in India has progressed to an extent that the effects of this transition have come to be felt in the moral world. The ties that held good and which were traceable to the ideals which a society based upon status cultivated and found it easy to cultivate, these ideals are not exerting that practical influence in life which they once did. The problem of poverty stands no longer where it stood when status meant more and contract less. The adoption of ways and

means of alleviating the consequences, material and moral, arising from poverty is therefore becoming a matter of paramount obligation every day upon the leaders of thought. And none of these ways and means can be divorced for a moment from a robust impetus to industrial and commercial expansion.

Moral and material progress do not stand in antithetical relationship so long as either of them does not become the exclusive, all-absorbing passion of a race. A sound reconciliation of the two is indispensable for human happiness and such a reconciliation has been the true Indian outlook upon life. In phases of our civilisation, the one or the other of them might have been unduly emphasised, but there was place for both always and the pursuit of wealth and philosophy, of fine arts and metaphysics, of things that mattered for comfort, joy and relaxation and things that mattered in appraising the value of these alongside the mental repose that was not subject to variation by success and discomfiture, -both these alike had recognition in India of old. The Mahabharath which teems with descriptions of fabulous wealth, and bristles with accounts of artistic, architectural and mechanical devices does certainly evidence a civilisation in reference to which no one can fairly object to the appellation—"materialistic." But the Mahabharath at the same time revels in ideals, metaphysical discourses and instances of human conduct in conformity with these ideals, that will entitle the same civilisation to be singled out as an unquestionable instance of the spiritualistic type.

The fact is India at no time despised material progress, although that material progress was sought after as but one stage in the full development of man which insisted upon his spiritual development as his ultimate goal. While, for the individual, spiritual destiny was the one ambition worthy of his aim as a member of society, his attention was nevertheless directed to the securing of those ends which can be denoted only by the word—materialistic. Hence those who would make use of the presence of either of these factors in support of any exclusive contention are presenting only a one-sided view of the Indian ideal. There is nothing therefore detrimental to our

distinguishing individuality as a nation if the message of material progress should be carried far and wide and if efforts should be made to direct the energies of the people of India in channels hitherto considered as somewhat derogatory to the serener ideals of the East. A people who do not make up their minds to achieve a thing will never come by it for all that they may be capable of, just as in the case of an individual whose capacity is not yoked to a definite purpose, there is a waste and a vacuum consequent on want of will.

### Our Industrial Organisation

Along with attempts to introduce new industries in our country, a stimulus has to be given to the better organisation of what may be designated exclusively indigenous industries on indigenous lines. India cannot afford to overlook them all and consign them to gradual but certain decay. We cannot supplant these by western machinery as though our dependence upon machinery has been got rid of and we were the manufacturers of machinery, instead of being merely buyers and importers. The population of India has to be seriously taken into account in displacing labour by the operation of mechanical power. Organised labour has not been an unmixed blessing in the West and we have to avoid the evils of too exclusive a preference for a uniformity based upon a "mechanical" efficiency—leaving the population at the mercy of "mechanical efficiency" alone.

We shall make our point plainer by an illustration if necessary. There is the handloom industry of India on which twenty millions of people depend for their livelihood. Even to-day, there are critics who hold that the handloom weaver must disappear in India as he has done in the advanced West and the poverty of this class of people therefore, instead of exciting sympathy and calling for means of alleviation, must be ignored in their own interests so that they may take to something else. We must declare ourselves against such a summary order of execution affecting hundreds of thousands of men and women, and an industry which in its methods of operation is much more compatible with health and cheerfulness than the life in a mill can ever hope to secure to the "hands."

But handloom industry in its present condition, however much of improvement it has undergone for some years now, is not exactly what it ought to be as an "industry." That it can become, but only with better organisation of capital and credit, with improved methods of supply of yarn, and with better ideals of discipline, punctuality and business methods than can be claimed for the vast majority of handloom weavers now.

We have taken only one example of indigenous industry which should not be killed instead of being cured. Indian pottery, metal works, lacquer-work, and similar indigenous industries call for organisation and development and not for gradual dissolution and disappearance under the stress of competition. Our advocacy of industrial expansion will not therefore mean merely the indiscriminate up-planting of indigenous industries by the foreign ones or the subordination of those higher principles of human obligation which are only too easily put out of sight in the fierce struggle for industrial success. In fact it is our mission to stimulate the industrial organisation of India on lines that will not mean the mere coming of an industrial civilisation with its callous and degrading consequences to the individual and the society alike. Nor do we propose to rest content with our present low level of efficiency, organisation and industrial ambition. What can be done towards the improvement of our cottage industries is a subject worthy of serious attention. We would draw our readers' attention to an article on the subject published elsewhere.

### **Wanted: Business Enterprise.**

A strong and systematic current of opinion in favour of industrial expansion and commercial progress, has been too long lacking and unless attempts are made to turn usurers into capitalists and financiers and to enlarge the area of industrial enterprise the rate of material progress will be far from what the imperative needs of the country require. An intimate knowledge of what is going on in Western countries, and an adequate appreciation of the resources of our own must be brought home to each and every individual of any capacity, as a worker, organiser, or investor. Information must be

made readily available on all industrial and commercial topics and facilities must be found for increasing the contact between the businessmen of America and Europe and the businessmen of India. Samples and descriptive maps, charts, and catalogues must be procured and kept open to view, so that Indian business agents may form a view on the spot. But these things must have a reference to what is easily and immediately possible of undertaking in India.

Government may open museums and bureaus and they may serve a useful purpose no doubt, but no businessman feels warmed up to set up his business in consultation with officials—all the world over—and very particularly so in India. There are ways in which Government can be of immense help in advancing the industrial expansion of India but they mainly lie in other directions. The industrial and fiscal policy of the Government has to be fashioned so as to be in keeping with the industrial and commercial interests of the country and unless this is done everything else, will be in the nature of giving a sponge bath to a man who is hungering for food. Communications have to be opened up, in each case of a suitable type, for the rapid transport of raw materials and goods—not with a view predominantly of exports and imports as has been the case till now—but with a view to bring the produce of the field to the manufacturing centres in India itself and these manufacturing centres have to be shifted from the vicinity of big cities to the rural and agricultural areas.

Numerous plucky young men are required with brains and energy to raise our industrial efficiency to a level of competence which will do good to them and good to the country. The impetus for these young men must come from a central financial and business organisation which will study things and do things. In the same way many of our indigenous industries call for stimulus and co-ordination with the capitalist and the businessman. The "businessman" has yet to come into existence in India, in regard to many indigenous concerns. The merely "educated man" has been here for a long time now. He has prospered as a lawyer or as a Government servant or at any rate tried to prosper with no small measure of success. We dare say there are businessmen in the



rank of lawyers and Government servants—and these must have come to the top. But these two walks cannot absorb all the available business talent in the country and consequently many hundreds who could have made immense successes otherwise have literally languished, for want of scope, to their own discomfort and to the detriment of the wider interests of the country. Material of this type must be better and more usefully utilised before we have the beginnings of an industrial awakening.

In providing business intelligence, in stimulating thought and in encouraging the growth of business enterprise, this journal will labour to the best of our capacity and light. The expansion of industry and trade, the greater productivity of capital, the better employment of business talent, and the amelioration of the conditions of the labouring classes will receive close attention from its conductor. We are aware of the difficulties of such an undertaking, but they are not insurmountable. We respectfully invite therefore the co-operation in every possible way of our countrymen of every class who are interested in adding to the material prosperity of our common motherland. As we have shown, it does not mean a departure from our immemorial, spiritual and moral ideal of life. On the other hand, these require and postulate the need for material well-being and material well-being has to be sought in the changed times in a more organised and better systematised way. This being undertaken now, we are but a vehicle that will be specially devoted to this object, supplying information, stimulating thought, aiming at greater facilities of progress, and establishing contact whenever it is wanting. We hope with public co-operation, to be able appreciably to advance on various directions the cause of our country and the interests of our countrymen.

#### **Trade with East Africa.**

The Government of India have, we note, invited the opinion of the Chambers of Commerce in the country regarding the development of Indian trade with East Africa. The occasion for the invitation was a proposal by Major McKerrow to the Government of India to help him in floating a company to promote Indian trade with that country. The Indian Merchants Chamber and Bureau of Bombay

have just issued an excerpt from their proceedings expressing their opinion on the matter.

"The trade between India and East Africa," they state, "has been going on for a long time and has considerably developed during the war period. This trade consists chiefly of cheap food-stuffs and clothing in which Indians carry on a large retail trade with natives of Africa. Indian shops are scattered far and wide over the country and it is estimated that more than 90 per cent of the retail trade with natives is in the hands of Indians." "This can be developed to a very large extent," they continue, "if the disabilities to which it is put at present are removed. The Committee are given to understand that for some time past the colour prejudice which is responsible for a great deal of mischief in South Africa has begun to make itself felt even in East Africa. It is alleged for instance that Indian merchants are not allowed to possess any piece of land on the high lands, but have to remain satisfied with low lands, which debars them permanent settlement in the country. The segregation campaign is in full swing and it is sought to enforce the removal of Indian residential localities and bazaar from their present long-established sites. Not only this but an attempt is being made to remove Indian ginneries from leading industrial places like Kumpalla and Nanohi in order to remove Indian competition from the way of European traders. If these allegations are true, the Committee fear that Indian trade in East Africa will be subjected to the same sort of harassments with which the Committee have been painfully familiar in South Africa."

Here is the conclusion of the Chamber. "The instances to which the Committee refer are, it is said, but an index to the general feeling of opposition on the part of European settlers to any encouragement being given to Indian trade and industries. Under these circumstances, it would not be surprising if Indian merchants are led to take but a passing interest in the development of trade with East Africa and are afraid to settle down or sink capital in the country which otherwise provides large potentialities for the settlement of several industries and for the expansion of trade of which some idea can be formed from the fact that only a small percentage of African natives

are used to cereal food or clothes. The Committee are of opinion, therefore, that with the removal of all the grievances and inequalities, there will be a natural development in trade between India and East Africa without any interference from the Government on the lines suggested by Major McKerrow in his scheme to form a trading company."

Major McKerrow answers the above note by stating that before a Trade Commissioner, for whose appointment the Committee agrees, is ap-

pointed, trade might slip out of our hands and that, at any rate, it is only a large company with Government help in the matter of transport, etc., that can develop business. The Major's answer seems to us a little unconvincing. At any rate, we see little need for a Government-aided Company, since we are told by the Indian Merchants' Chamber that Indian firms will be ready to undertake the business, provided the disabilities under which Indians are placed there are removed.

## INDUSTRIAL EXPANSION IN INDIA.

By Mr C. Gopal Menon, A I B, I I P S, F C I

THE first number of *COMMERCE AND INDUSTRIES*, which was ushered into being last month, has some very interesting articles on the industrial situation in India. It is the purpose of the writer of this article to show what expansion in the direction of industrial development India has actually made during the past five years.

### THE NEW ANGLES OF VISION

In the address to the Convocation of the Madras University delivered by Sir Thomas Holland, he pointed out that India has to be prepared in the near future for two great changes—(1) the acceptance by Indians of a greater share in the administration of the country, and (2) an equally important forward move in industrial development. Lord Chelmsford, in opening the Madras Exhibition in December, 1917, said "We, many of us, during these last three terrible years, revised our opinion on most subjects, and on this matter of industrial enterprise, I doubt, if there are any now who would not say that it is the bounden duty of the State to foster industrial enterprise to the utmost of its ability. Personally, I put the matter of industrial development in the forefront of my policy."

The utterances of these eminent men are significant. The one—who has led the deliberations of the Indian Industrial Commission and later on, as the head of the Munitions Board, has accumulated for us a wealth of practical experience by supplying war materials in India on a scale

hitherto unknown—has clearly demonstrated the future possibilities of India in various directions for industrial expansion. The other, as the head of the administration of this vast country, has emphatically given out his view of the future policy of his administration on industrial development. These are, indeed, wise words, and India's industrial expansion during the last five years has really been one of the surprises of the war.

### THE EFFECTS OF THE WAR

Since the outbreak of the War, the importation of manufactured goods from the United Kingdom was greatly reduced and those from Germany, Austria-Hungary, Belgium and France, stopped altogether. Trade with the United States, particularly in steel and manufactured metals, increased twofold. India, during the war period, obliged to fall back on her own resources, supplied materials, not only for the prosecution of the war, but also to meet her home demand. The number of Joint Stock Companies started within the last five years shows her ability in industrial and economic expansion. During 1914-15, 112 companies with an aggregate capital of Rs 43,132,214 were started. The number of new companies in 1915-16 was 137, and in 1916-17, 184, and in 1917-18, 278. The authorised capital of these companies was Rs 297,597,847. During the four years of war, 705 new companies have been registered. Some of the old organisations, particularly the cotton and weaving factories,

have made extensions to their original capital. At present, in Bombay, company promotion on a wholesale scale is talked about. A large Insurance Company has already been started and four or five banks with their head offices in Bombay are being floated. Large sums of money are said to be awaiting investment. India's trade balance, which stood at 27 crores a decade ago, has steadily gone up and the balance of trade last year was 84 crores in her favour. India's trade prospered for the last few years, and it is hoped, that the prosperity will continue hereafter.

#### OUR TEXTILE AND LEATHER INDUSTRIES

The number of jute mills increased from 60 in 1913-14 to 74 in 1917-18. All these mills, which are situated in Calcutta or within a radius of 30 miles from that city, turn out enormous quantities of gunny bags. Last year, Calcutta exported 805,000,000 gunny bags.

The export of hides and skins amounted to 1,632,000 cwt in 1913-14 valued at Rs. 1,14,063,816 and leather 298,000 cwt valued at Rs. 11,351,145. Madras exports largely hides and skins in a tanned condition which is known as "East Indian Kips" in foreign markets. The export of raw hides from Madras is small, but Bombay, Karachi and Calcutta send a considerable quantity of raw skins. It is, however, regrettable to notice that, notwithstanding the excellent tanning materials that exist in the country, we are not able to convert the greater portion of this raw produce into manufactured goods by the different processes of tanning, curing, dyeing, dressing and shoe or boot-making.

Another industry which shows considerable increase during the fiscal year is cotton weaving. This industry has increased by more than 50 per cent above the pre-war average, while imports by sea fell by 1,076,000,000 yards or about 40 per cent. The number of looms as compared to the pre-war average rose from 88,100 to 110,800 or 26 per cent. During 1917-1918, the Indian mills turned out 660,576,000 pounds of yarn and 381,404,000 pounds of woollen goods. Notwithstanding the increased production from the Indian mills, there is a great demand for cotton goods from abroad which has not been met.

#### IRON AND STEEL

There is ample evidence to show that deposits of iron existed in India from time immemorial and our ancients were acquainted with its uses and properties to a very great extent, and could produce it very nearly equal in quality to the iron of the present day. There is, no doubt, unlimited amounts of iron and steel available in India, this is evident from the fact of the growing impetus given to this industry during the war period. The Tata Iron and Steel Company, at Sakchi, near Calcutta, whose turning capacity for steel is 17,000 tons a month, and the rolling mill capacity is 12,000 tons of rails and smaller sections a year, have done very well by supplying the demands of home and foreign markets. New additions are under contemplation for the supply to Government of 10,000 tons of steel plates per annum, structural materials, such as angles and channels are also made. Another concern of a similar type, known as the Indian Iron and Steel Company, Ltd., which occupies 6½ square miles has recently come into existence.

Another enterprise of Tata's is the Hydro-Electric Power Company, with a plant capacity of 60,000 horse power, which supplies power, to 34 mills in Bombay, transmitting power at 1,00,000 volts over a distance of 43 miles.

These are all evidences of industrial expansion in India, and with a supply of plant and machinery at a reasonable price, many others will be started in the near future. The present sterling exchange will materially help for the import of plant and machinery. There is ample room for developing cunning industries, sugar, soap, glass, pottery, brass and copperwares—brass and copperwares of Benares and Aligarh having attained some degree of attention.

#### CREDIT INSTITUTIONS

In the article in the last number on industrial situation in South India, the writer points out that what is really wanted is capable, bold and ambitious capitalists in India, for her industrial and commercial advancement. The present is the era of industrial and commercial development in India. What is wanted is a net-work of banks, banking is the mainstay of industrial development and the more the number of banks in a country the more will be the country's commercial and industrial prosperity. India has been

greatly deficient in banking capital, and the establishment of banks, from the facilities they afford for raising money, will induce men of capital to embark on commercial and industrial undertaking. British capital has been employed for industrial purposes to the mutual benefit of both countries, and Indian capitalists would do well for the future to invest their spare funds for the promotion of banking institutions. Bigelow points out that the rapid increase of wealth in England is partly due to the democratic nature of its capital. What is wanted is to make use of the money of people who do not immediately require it for the use of those who are really in need of it. This is what is the original or the primitive idea of banking. Banks are also wanted for industrial and agricultural development. In Japan, there are about 50 agricultural and industrial banks. The Industrial Bank of Japan has a capital of 5 crores, deposits to the extent of 15 crores with a profit of 10 lakhs, and dividing 7 per cent per annum for dividend. In France, Credit Lyonnais, which has hundreds of branches all over the country, makes advances to the peasant and the small trader, enabling him to obtain money on moderate terms.

#### INDUSTRIAL BANKS

During the last five years, credit has played a larger part than even guns or bombs or shells.

What we want is credit facilities not only to improve home industries, but in extending foreign activities of the country. In foreign countries, banks undertake all sorts of duties in addition to receiving money for safe custody. In the industrial world, many facilities are given by the banks to small manufacturers and merchants more particularly in fostering foreign trade. The Titus Industrial Bank is started with this object. We wish to see a few more banks of similar type introduced in order to render help to home industries. One of the results of Lord Faringdon's Committee which sat in England in 1917 was the establishment of a huge institution known as "The British Trade Corporation" to afford facility and establish large credit institutions for developing British trade abroad. Its object is not to interfere with the present Joint Stock Companies, but to fulfil functions for industry which the present banking institutions are not capable of doing. It is similar institutions that are required for industrial expansion in India to-day, and it is to be hoped, that the day will not be far off for India to stand on the same pre-eminence in trade and industry as other countries in the world when the problem of finance required for such undertakings has been solved.

## THE RISE IN EXCHANGE.

By Mr. K. P. Viswanathan, M. A.

THE Secretary of State has in the course of the last two years and more raised the exchange four times. The fourth rise was announced last week from 1s 8d to 1s 10d. The reason for this is plain. Government can supply rupees without loss at 1s, 8d, only if silver prices do not exceed 53½d. The cost price of a rupee to Government when silver stands at about 56d an ounce, as it does at present, will be taking transit charges, insurance, interest, etc., at the higher rate which is probably the correct figure now, somewhere about 21 63d. The Government feels it will not be justified in giving the coins at 1s 8d when their actual cost to them is about 1s 10d each at the expense of the general taxpayer. What they are now trying to do seems

to be to grope for a new and stable ratio between gold and silver on arriving at which they could finally fix the exchange rate of the rupee at a figure which may be expected to be stable without making the Government in a heavy loss on coinage. "The stability of exchange," wrote Mr. Dadabhai M. Dalal, who is believed to be one of the confidants of the Finance Department, "can be ultimately established by intermediate temporary dislocations or through constant oscillations for a period during which the revised value of silver can be properly ascertained." When Mr. Dalal wrote this, he seems, judging by the events, to have echoed the views of the Government. The Government of India is simply pursuing a policy based on the first of the two alternatives that Mr. Dalal

points out. We are not immediately concerned with the question whether the Government are pursuing the wisest policy, within the very narrow field for freedom of action which alone is permitted to them by the "City" in London through the Secretary of State, they appear to be pursuing the most prudent course possible, and there we have to leave that question for the present. The point that we are to discuss now is rather the effects respectively of a low and a high rate of exchange in the country, and to this we shall now turn.

#### THE CASE FOR A LOW RATE

The case for a low rate of exchange is easily summarised. Its advocates base their arguments principally on two circumstances. One of these is political. The Indian Government's solvency, they point out, depends on India's ability to maintain her exports to such an amount that the annual balance of her trade, that is, roughly speaking, the excess of her exports over her imports, will be equal to about £25 million sterling—which is roughly slightly above the maximum amount of what is called her "Home Charges." This India can hardly do, they say, unless the exchange is at a fairly low level. If the exchange were at a high level, they state, the European demand for our produce will fall owing to the increased prices, for, the European demand for our produce is based on the cheapness of our produce compared with that of the produce of other parts of the world. The point may be illustrated by a hypothetical case. Suppose, an English grain dealer wanted to stock wheat. He would make enquiries in the wheat-producing countries and suppose the result of his enquiries is that he found Russian wheat to cost him 5s 3d per quarter in London, while Indian wheat, where exchange stood at 1s 4d, cost him only 5s a quarter in Mark Lane. In these circumstances, it is clear he will resort to Indian wheat in preference to Russian wheat, assuming the quality of the two to be the same, because he gets it at a price which is 3d a quarter less than Russian wheat. Suppose, again, that after some time, Indian exchange rises to 1s 10d. In this case, on every quarter of wheat, he will be called upon to pay, other things remaining the same, 6d more per quarter of Indian wheat. In this case, it is clear, the English merchant will lose 3d per quarter, if he were to continue to purchase Indian wheat. Merchants do not trade

for loss, and so Indian wheat will not be purchased, our exports may fall below our imports and make the Government impossible to remit the Home Charges, leading them on to bankruptcy. This, of course, will not take place, owing to counteracting causes coming in operation simultaneously. The argument is purposely pushed to absurd lengths to point out clearly the nature of the argument and not to assert that such a thing will ever take place. So far, then, as to the case for low exchange from the side of Indian finance.

#### THE RYOT'S INTERESTS

It is not, however, on this ground that many argue for a low exchange. They state they put the case from the ryot's point of view. Their position also is best illustrated by a hypothetical example. Suppose, a ryot produces and exports 500 bags of wheat per year and is paid £100 for it. At the rate of 1s 4d a rupee, he will get Rs 1,500. If we suppose that he pays Rs 500 to Government as tax and incurs Rs 500 as cost of cultivation, including rent to the landlord, then, Rs 500 will remain to him for his own expenses. Now, suppose that the rate of exchange is raised to 2s a rupee. In this case, the ryot will get for his 500 bags the same £100, assuming that the prices are regulated in Mark Lane and not in Bombay or Karachi. At the rate of 2s a rupee, however, he will get only Rs 1,000. Out of this, he will have to pay the same Rs 500 to Government, and his cultivation expenses will stand at the same amount of Rs 500. The result will be that he will be left with nothing under a 2s rupee as against a net profit of Rs 500 under a 1s 4d rupee. This is, of course, an extreme, not to say an altogether impossible case, but it, however, brings home, as perhaps nothing else can, the tendency of a rise in exchange for the time being. The advocates of a low rate of exchange assert that the ryot will be ruined under a high rate of exchange, and that since about 90 per cent of the people are pursuing agricultural operations, practically the whole country will cruelly suffer under a high rate of exchange.

Besides this direct interest to the ryots, it may be pointed out that they have an indirect interest also in seeing that exchange is maintained at a low rate. The development of

India, it may be said—at any rate, it used to be stated—depends on foreign capital. Foreign capital it was that made the development of railways possible and the development of railways resulted in increased prices to the ryots. The development of industries also, it may be argued, which increases the demand for agricultural produce and thereby benefits agriculturists, depends on foreign capital. Such foreign capital, the low exchange advocates may say, is attracted by a low exchange and repelled by a high one. How far these things will have a practical bearing on the question in the circumstances of the day is, however, a quite different affair and will depend on the strength of numerous counter-acting causes. For the present, we shall be satisfied with noting their arguments.

#### THE CASE FOR A HIGH EXCHANGE

The advocates of a high exchange assert equally with those of the low that their remedy is necessary in the interests of Governmental finances as in those of the country in general. Under a 15-17 rupee, they point out, the Government will have to send 30 crores of rupees in satisfaction of their Home Charges of £20 million sterling. Under a 2s rupee, however, they need send only 20 crores of rupees. A saving of 10 crores, if it could be made without serious monetary disturbance in the country, as they say it could be, is well worth effecting. The Afghan War, it is stated, is costing Government eight crores a month, and unless exchange is raised, they say it would be extremely difficult to find the necessary money. Moreover, with silver at price above 60, it would be imprudent for the Government to provide rupees at anything less than 2s each. Further a high exchange would have salutary influence on the rupee securities of the Government. It will, it is said, strengthen their credit, and it will make it easier for them to convert their sterling securities into rupee securities. The reduction in her sterling debt will reduce her Home Charges and thus indirectly stabilise her finances. From the point of view of Indian finance, these are the advantages claimed for a 2s rupee.

This is only one ground on which a high exchange is welcomed by some students of the question. Their second reason for their suggestion is that a 2s rupee will solve our currency troubles. A 2s rupee, they say, will limit the

demand for precious metals by reducing exports and increasing imports, for, a high rate of exchange will stimulate imports, since will importers get an appreciated rupee. Moreover, if the exchange value of the rupee be raised to 2s, then the rupee will be kept a token as it was in pre-war days and that therefore it will not be melted down for silver bullion till the price of silver rises very much above 60½ an ounce—a contingency not much apprehended. The demand for currency would, under it, be reduced and it will not be difficult to supply the reduced demand as the coming of silver will not in that case lead to any loss.

#### OTHER ADVANTAGES OF A HIGH EXCHANGE.

There are some other advantages claimed for a 2s rupee. For one thing, India, it may be contended, is in need of a huge railway and industrial development programme and the rise in exchange rate will stimulate the import of essential machinery. For another—and this, from the point of view of consumer—the food grains and other necessities of life such as cotton for cloth will be available at cheaper prices than they would be with a low exchange rupee. It is on this point that Professor Jevons of Aligarh lays the greatest emphasis, his opinion being that, if exports are stimulated with a low exchange rupee, people will suffer from famine on an immense scale. It is argued that agriculturists will not suffer so long as they get a reasonable margin of profit, and it is asserted, rightly as we think, that they will get this margin even under an increased rate of exchange. Then will, they say further, be no economic disturbance in the country, either directly on account of the rise or indirectly through disturbing the relation between debtors and creditors, for, gold prices will rise as they did in the past four or more years, at least 50 per cent. above their present level. The rise will therefore be only paid to the rupee security holder, the civil servants and others who are in equity entitled to the original gold value for their securities, goods and services.

#### GENERAL CONCLUSIONS

The position arising out of the conflicting interests of those of exporters and of importers is thus one of great complexity. The fact is there is no element of truth on either side, though the effects of that truth are grossly exaggerated, especially, perhaps, on the side of the exporters. Thus, the exporters who clamour for a low exchange do not take into effect certain

peculiar circumstances of the situation which more or less neutralise the depressing effects of a high exchange. In the first place, the demand for some of the Indian commodities is highly inelastic. Bengal, for instance, has a practical monopoly in jute, and cotton producers have the demand for cotton unimpaired in spite of the rising exchange and in spite of lack of tonnage. The experience of the Straits Settlements, narrated by Kemmerer, confirms the theorist that where demand is keen the loss due to rise in exchange is shifted on to the consumer through the importer. Secondly, prices abroad have risen far higher than those in India, and far higher than the rise in exchange, so that the demand for Indian produce cannot be diminished by the competition of foreign European or American producers. Finally, it must not be forgotten that even if, through the appreciation of the rupee, Indian prices fall, the producer will not long be put to the inconveniences arising from it, because such a fall in prices would stimulate foreign demand. It is suggested that the rise in exchange acts as an indirect taxation on producers, but it must not be forgotten that it can do so only in case prices have fallen. Prices, however, far from falling, have really risen. The same is the case with the disturbance of the relation between debtor and creditor by a rise in exchange. The effect of the increase is neutralised by the rise in prices.

On the other hand, it is open to question whether the rise should be much as is *ad* above

the pre-war basis. Prices certainly have risen, but, it is neither necessary nor just to raise exchange so much as wholly to neutralise the rise in prices, depriving producers of the advantages of the high prices, seeing, especially, that their cost of living has risen owing to the rise in prices of other commodities than their produce. Moreover, the argument that it will stimulate imports of essential machinery need not necessarily be confined to the imports of machinery. A high exchange will stimulate the imports of costly and useless luxury as much as it will stimulate the imports of essential machinery. This is one of the greatest dangers of this period, the danger, that is, of our hard-earned trade balance being liquidated by the dumping of attractive trifles among an ignorant peasantry and not very enlightened landed gentry. The fact is the raising of the exchange must not be utilised to a purpose essentially extraneous to its legitimate function. Imports must be facilitated or restricted by other means suitable for such a purpose, though in using those means account may be taken of the effects of exchange. The same holds good of the argument based on the interest of the consumers. Exchange should not be tampered with for this or that purpose, but should be regulated solely with reference to its actual function, although the effects of rise or fall should be taken note of so as to avoid gross injustice to any interests. This, I think, is what is aimed at by the Government so far as their present policy is concerned.

## UNDER-EMPLOYMENT IN INDIA AND ITS REMEDY.

By Mr G. Narasimham, F R S A, F A A

**T**HE scope for domestic industries in India is unlimited, so is the need for them. On the one hand, there are certain kinds of industries in which the use of machinery will be very limited indeed. Art industries such as wood carving, lacquered goods, textile fabrics like carpets, matted articles and so forth must, so long as their peculiar property is in demand, be turned out by hand. So are industries in which close personal attention and the handling of individual things are necessary. There are certain special qualities which make small

industrials succeed, and fortunately, the Indian is not lacking in them. Dexterity and nimbleness of fingers, perseverance, patience and true-ness of eye which make for success in these matters are as much possessed by Indians as by the Japanese and others, and where the Japanese have succeeded, so far as these industries are concerned, there is no reason why Indians should fail.

### UNEMPLOYMENT IN INDIA

The need for encouraging these industries is as urgent as the scope for it is unlimited.



Indian poverty is explained to a great extent by the chronic under-employment from which the Indian is at present suffering. The competition of Western machine-made goods drove him altogether to agriculture. But agriculture cannot employ, nor could it support, the whole lot of them. The result has been that the Indian peasant works for about four months a year—the period of the year comprising the agricultural season—and practically passes the rest of his time in idle poverty. In his active period, he gets a full meal a day and some *congee* in the morning and in the noon or at night, but the rest of the year, he eats what he gets—and what he gets is generally insufficient to give him a hearty meal. This is because he has to lead a life of enforced idleness. The introduction of domestic industries is calculated to give him suitable work and hence the need for encouraging them.

#### LIMITATION OF FACTORY INDUSTRIES

There is one more reason why domestic industries should be encouraged in India. This has been well explained by that great co-operator, Mr. Henry W. Wolff in a letter to *Capital of Calcutta*. "Domestic industries, so it is admitted," he says, "are a necessity to the country. The very nature of things, a huge population scattered over an enormously extended ground, actually calls for it. There are well meaning men out for the development by presence of large factory industries, such as might, as they think, place India industrially on a par with Lancashire and Yorkshire. There is room for such industries, of course, and one would wish to see them growing up and flourishing. However, they will have to be selected and supervised with care." "What undue effort in this direction will bring about," he continues, "we have ample opportunities of seeing in Japan, where, on the showing of Professor Kumazo Kuwada, a member of the House of Peers, writing in the *Japan Year Book*, 80 per cent of the workers actually employed in such industries fall out of the ranks, where 8 per thousand are carried off by consumption while in employment, 30 per cent after retirement from such, and where, as Mr. Robert Porter reports in *The Full Recognition of Japan*, night workers and day workers, working at a miserable wage, have to share the same bed, which accordingly is never even

aired, the new occupier shoving himself in as fast as the old one goes out." We can only exclaim with Mr. Wolff, 'God forbid that India should share experiences of this sort with her eastern neighbour.' There is illness and distress enough in good sooth in India as it is."

#### THE EXAMPLE OF JAPAN

The above is but a negative lesson that we have to derive from Japan. The experience of Japan offers us a positive lesson as well. Here is that lesson as expressed by Mr. Wolff. He writes "Your neighbours, the Japanese, who never sleep but with one eye, keeping the other eye carefully open as the 'weather' one, have found this out long ago and, with the characteristic quickness and resource of their race, acted upon the discovery. I go into one of our great giant stores here in London—any one that you may please—where there is a tremendous turnover day after day. Everywhere I find a special "Japanese Department," full of goods of the most varied description, a large proportion of them made by hand by the skilled artificers of their country—goods which sell readily and are appreciated. There are lacquered goods, textile fabrics, matted articles, and I don't know what else besides. And on enquiry I hear that there is a great deal more than the busy, adaptable and docile sons of the Rising Sun provide with their cheap labour, their lissom fingers and their remarkable all-round aptitude for both the British and the American market. American firms have supplied them with patterns on which to model their products, and the Japanese do what is wanted of them."

"Now these Japanese," Mr. Wolff continues, "are exact counterparts to our Indian small industrials. They have come newly—comparatively newly—into the market, with old-fashioned methods, old fashioned tools and very moderate wants for themselves, all handed down by tradition. But they have shown themselves quick to learn, adaptable to a rare degree, clothed with an elastic skin, which takes in new wrinkles easily. Their Government has, like themselves, kept its eye steadily to the main chance, providing technical teaching for them and planning the way for easy business. The result is a foreign trade—in goods which Indians might manufacture as



well as any Japanese—which brings ample grist to the mill and the full compass of which exceeds all that people are likely to estimate it at, because so much of it is unavowed. 'I have English textile goods here,' so said to me the Manager of one of our great stores, 'which were made by Japanese in Japan.'

#### REQUIREMENTS OF THE SITUATION.

The possibilities of success and the need for it being thus plain, it remains to be seen what should be done to encourage domestic industries. These things are mainly two. In the first place, we should find a market for what we produce. Here, there is the difficulty that what we have to offer is not required in the market. Mr. Wolff has interested a friend of his connected with a great store in England which sells Japanese wares, and this is what he says as regard the prospects of Indian production. "The Japanese specialise in household articles for use to a far greater extent than in India. It is a question of the suitability of the commodities concerned for the English market." "We have tried Indian ivory carvings and silver ware and that class of goods," so he went on, "only to find that there was no demand for them." "That knock-knackery evidently," Mr. Wolff says, "is of little use for our purpose. But we know that in the production of lacquered goods, textile fabrics of various descriptions—above all things, carpets as well as in carving and furniture-making, Indians can well compete with Japanese or anyone else."

It is evident from the above opinion that our articles are not wanted. The mountain, it is clear, will not go to Muhammad. Muhammad, then, must go to the mountain. And this is our second requirement. We must make such articles as will suit the market.

What do we want in order to gain it? Let Mr. Wolff answer. "Instruction, teaching, guidance first of all. Weavers, carvers, leather dressers and so on want to be led to lay aside those antiquated tools, scrip their antiquated practices, learn what is wanted in Europe—European dealers are likely to assist them in that as much as ever is needed, because it is to their own interest that this new source of supply should be cultivated—and learn also to turn out what is wanted. Authorities directly interested in the improvement of such industry, such as Registrars of Co-operative Societies,

can do not a little towards this—and are sure to be ready to do it. The Government can do more. *Fas est ab hoste doceri*. Our enemies, the Germans, have done a great deal in this way, and with undeniable success."

The fact is that the securing of a market for the goods we produce and the adapting of our wares to the needs of the market are phases of one and the same problem—the problem, that is, of securing a market for our copy, skill, and artistic eye.

#### PART OF CO-OPERATIVE MOVEMENT

The Indian artisan cannot feed the market regularly undisturbed, with articles of uniformly good quality unless he is financed and his work supervised and regulated by some independent and sympathetic agency. That agency should surely be provided, as it will most fittingly be provided, by the co-operative movement. As Mr. Wolff says, "Once the market is secured, co-operation may be trusted to do the rest—provide the necessary cash, introduce the requisite organisation, organise the purchase of raw materials and the sale of finished goods. What veritable wonders it may produce in this way, even under distinctly unfavourable circumstances, we have recently learned in Ireland, where co-operation has turned absolute wildernesses on soil consisting of mere rock and in the almost entire absence of modern means of communication into flourishing oases of plenty. So it is in Templemore, where hosiery workers now receive a recompense for their labour, such as, before co-operation came into the field, they could not have thought of as much as dreaming of, and in the Aran Isles, where fishermen under the sway of co-operation realise double and more of what they used to do, under the domination of middlemen dealers, for their fish. The world is getting on fast on this road. Germany and Switzerland have taught us something. The United States and Canada, taking up the work of organisation of markets with truly "new world" verve, are teaching us more. But the first thing to do is to secure the market."

#### NEED FOR A TRIAL

The immediate requirement of the situation, then, is that our goods should be tried in the British market and Mr. Wolff's friend is willing to help us in this matter. We associate ourselves

wholeheartedly with this appeal of Mr. Wolff. "Now," he writes, "cannot some good people in India—of whom we know that there are a great number—and among Anglo-Indians at home take up this matter, accept my manager friend's offer and undertake to stand the racket of one or two experimental deliveries, charging themselves with the risk of failure to sell the goods? Of course, there would have to be a careful selection first of the goods to be offered, and care will also have to be taken to see those goods manufactured so that they will stand a test. The Dimes have done this with their butter, then eggs and then bacon, and after a little groping—at their own risk—they have conferred a boon of immense value upon their country as well as upon themselves. In India we shall not have far to look for guidance in such work. There are the Japanese, who have acted as pioneers exploring the ground for us." We hope that enterprising businessmen and influential co-operators will come forward and immediately try this experiment.

#### THE FUTURE

Should the experiment succeed, there should not be any serious difficulty in arranging for sale on a scale consistent with the demand for the wares in the market. Mr. Wolff appears to have little faith in Home Industries Associations. He writes: "Of what will have to

follow after—methodical organisation and making sure of a trustworthy supply of trustworthy goods—it is too early to speak now. That will have to be thought of in due course. The Rubicon to be crossed is the sale—sale abroad, where quality comes far more into account than it does at home, but where also more money is to be picked up. One would wish such stores as that organised by Lady Carmichael in Calcutta all possible success. My own experience of what has been done on similar lines in London, Paris, Lyons, Rome, Milan and other places, is not over-encouraging. But in any case a recognised place in our great all-containing bazaar must, if it can be obtained, prove of very much greater value." His lack of faith in organisations like these is well justified, for they have their origin in a few enthusiasts, often in a single individual, then vitality and longevity vary with the intensity and the continuance of their enthusiasm. Above all, it is seldom, if ever, that you get a continuous stream of disinterested, capable and philanthropic enthusiasts. The stability of such enterprises, then, is ensured, not by seeking after enthusiastic and capable professionals, but on making those directly interested in them capable, discerning and businesslike, and for this, we must look to the progress of co-operation among them.

### 14 POINTS ON HOLIDAYS.

In deference to the fashion of the time, Mr. H. A. L. Fisher, President of the Board of Education, placed the following fourteen points on holiday before the Educational Associations Conference—

- 1 Plan your holidays carefully but be ready to abandon your plans on the slightest provocation
- 2 Never go north when you can go south
- 3 A change of work is in itself a holiday
- 4 Never drive when you can walk, and never walk when you can ride
- 5 Take short cuts if you will but remember that there is seldom time for them
- 6 A good holiday is like eternity: there is no reckoning of time
- 7 One of the best fruits of a holiday is new friendship
- 8 Stay where you are happy
- 9 Soak yourself in the atmosphere of a new place before you study the details
- 10 The best holiday is that which contains the largest amount of new experience

11 Holidays come up for judgment before the next term's work

12 In the choice of holiday books act on the principle that one of the main uses of leisure is to feed the imagination

13 The principal experts in the art of taking holidays are painters, naturalists, travellers and historians: the worst person to consult is a golfer

14 On occasions a very good holiday can be taken at home—if you change the hour of breakfast

Wide, vivacious, desultory reading of all kinds of books continued. Mr. Fisher was the finest way of quickening the imagination, and was the best way of keeping alive. Quantity was almost as valuable as quality.

To keep books behind glass or on ill-lighted bookshelves was the summit of inhumanity, he had seen some school libraries that contained a ton of tedium for every ounce of entertainment.

## THE PROPOSED SUGAR COMMISSION.

*By Mr. John Kenny,*

*Formerly, Director of Agriculture, Junagad*

**T**HE fact that Mr. James McKenna is to be President of the proposed Sugar Commission is a guarantee that the inquiry will be thorough. During the last few years a great many essays have appeared in the press, the upshot of which seems to be that we can do better if we but have great central refining factories. Yet this and our small average yield per acre are not the controlling factors in the import of sugar into the largest cane-growing country in the world.

### THE YIELD IN INDIA

India can produce as much sugar per acre as any other country. In Telungana (Hyderabad, Deccan), 84 tons of cane have been grown on an acre of land watered by a channel from a tank and the amount of gur manufactured by the ordinary raiyats' method was 16,000 lb. Java can scarcely beat that. A ratoon crop on the same acre returned 10,000 lbs. of gur. Yet the expenditure was trifling. There are various parts of India in which one of the costliest manures, saltpetre containing 10 per cent. nitrogen, can be obtained for less than Rs. 200 per ton. Less than 18 cent. per acre will supply all the nitrogen and potash required for a very heavy crop and 2 cent. of Trichinopoly ground phosphate, which should not be dearer than Rs. 6 or Rs. 8, will be sufficient for the requisite supply of phosphoric acid. A ratoon crop would require half that amount of manure per acre and an acre could thus give the farmer 26,000 lbs. of gur within two years.

### LACK OF CAPITAL

Unfortunately, the cane ripens almost at the same time all over the country and the village sowcar gives the lowest price he possibly can for the produce. The initial expenditure is beyond the means of the majority of Indian peasants few of whom can afford to wait a year for a return on their outlay. This is

overcome to a certain extent by partnership co-operation but even these are so petty that in many places it is rare to see patches under cane of more than an acre in extent.

But, with a little capital and a fairly steady market price, there is no doubt miles of continuous canefields would soon be the rule.

Would that help the raiyat? It is doubtful. It is more than probable the increase of gur would but serve to lower its price and scarcely bar the way to greater imports of refined sugar.

What is the explanation of the seeming paradox that the greatest sugar-producing country of the world has to purchase from outside something like a million tons annually?

### THE CRUX OF THE PROBLEM

The key of the puzzle lies in our abkari system. Till that is changed, our canefields may produce three as much per acre as Java and central factories may cover the land but little progress will be made. The richneries, if ever they are started, will soon but serve as monuments of failure. It is the successful use of by-products that has saved so many industrial concerns and only when molasses, the principal by-product in the manufacture of refined sugar, can be economically disposed of, will there be a chance of arresting the import of sugar. This is the question to be solved before any attempt is made to start large sugar-refining factories to compete with beet. With its solution, the spread of the growth of sugar cane and the increase of returns per acre will be automatic. Without it, all the talk of supplying, from within, the sugar requirements of India is, to use an Americanism, merely hot gas.

# INSURANCE IN MODERN SOCIETY.

By Mr. S. Kabboor, B A, F F A A, F C I

Considerable progress has been made in recent years in classifying the dependent and defective classes of the community. This is a hopeful thing. By classifying them by causes, we may reasonably expect to discover means of prevention. Suppose that such an attempt at classification had been made one hundred years ago. Let us take, first, the dependents, by which term is meant those persons who become charges upon public or private charity, not because of personal defects which make them less efficient than others of their kind, but because of infancy or age or other natural disabilities which come to all men, but which have overtaken them without provision for support.

The distinction between dependents and defectives is not as wide as the Straits of Dover. The defectives are dependents, at least, in such enquiries we consider only those who are dependents. And all the dependents whom we shall find in ordinary times bearing loss of employment as a cause, are likely to be defectives. But we do not classify a child or an old man among the defectives, we do so classify a man who is disabled before his time, whether by accident or disease.

Armed, then, with a somewhat meretricious distinction, let us undertake just now to analyze the dependent classes of a century ago. It may be premised that every individual is dependent in childhood, if not upon the State, then upon his parents or upon provision left for his support by his parents, and that this period of dependency extends, gradually lessening in intensity, through the child's minority.

## THE DEPENDENT CLASSES

The first class of dependents, then, which we find among the persons who have become charges upon private or public charity, is that of orphans who have no provision for their support from the savings of their dead parents. A more pitiable class of dependents will hardly be discovered. Their condition is clearly in no sense a thing which they could have avoided, it is not their fault. Moreover, they look forward to the prospect of lives blighted by the disrepute and disadvantages of such training.

To the degree that insurance is nowadays patronised, this evil is abated. Women may bring children into the world under the protection of life insurance, assured that the children they bear will not be handicapped in the race of life by the spirit-breaking load of having been objects of charity. The difference between the picture of little children torn from a happy home and the arms of widowed mother, unable to support and care for them, and

the picture of little children saved to self-respect, educated and made useful to society by the proceeds of life insurance is an important one not merely to the children and to their mothers, but especially to society, itself. For society is served by having children given the best opportunities to become efficient servants of their fellows.

But, in our analysis of this 1819 class of dependents, we find widows who but newly become mothers, and their babies. We even find women who in their widowhood bring forth posthumous children in charitable institutions. Thus, their babies grow into life from the shadow of such an origin and the mothers themselves had crushed and hopeless lives under this disgrace.

Moreover, even when father and mother are both living, we find among these dependents a most pitiable class, viz., those parents who are able with their toil to keep life in their children until sickness in the family exhausts the family store but who are without means to bury their dead.

Few among the well-to-do have any conception of what a blow it is to a self-respecting working man, who has paid his way all his life, to be compelled to call upon cold charity to bury his child. It is a sacrifice to him, a crime against the dead. He can never look up after it. Inquiry will convince the most sceptical that no agony of the poor compares to this, and that no experience is so likely to completely destroy that spirit of manly self-reliance which is necessary to good citizenship.

Life insurance is already developed to the point that none of these unfortunate need to appear in the dependents of the year 1919. Many of them will appear there, no doubt, owing to the imperfect patronage of that beneficent institution, a neglect which is owing largely to bad industrial conditions. But the institution of life insurance is now sufficiently developed so that the complete disappearance of these classes of dependents could, by the application of known and demonstrated principles, be brought about.

## PAUPERISM AND OLD AGE.

Let us pass on. Among these dependents of 1819 we shall find old men. Now, age is a natural phenomenon, coming to all men who survive. It should be provided against by thrift, for there has been time in which to do so. This same argument cannot always apply to provisions for widows or orphans, for in early life one may not have been yet able to save enough. But thrift, and thrift only, in the present state of society can provide for old age.

Among these old men we shall find many who have not tried to save, who possibly did not have the faculty of saving. Insurance can offer no effective provision for these, except that in endowments and old age annuities it does offer arguments and opportunities for regular saving which ought to help.

But in this class in 1819 were found many who had saved, even to the point of niggardliness, many in fact who in old age were suddenly reduced from wealth to penury. Among the causes of this undeserved pauperism are the following:

**Destruction by fire**—No calamity was more unavoidable, more dreadful, more sudden than this. In an hour, the entire savings of a life time of thrift could be swept utterly away. The home, the little stock of wares, the building upon the rents of which one depended for daily bread, all could be lost, all was dependent for permanence not merely upon one's own carefulness—and everybody in the nature of things is, sometimes—careless—but also upon the carefulness of neighbours. Whole cities were rendered homeless by single conflagrations.

The best that one could expect, if thus afflicted, was that generous neighbours would make up a purse out of charity, the worst that he could expect was the poor house and a pauper's grave. Insurance against fire, which became popular first was then but making its way. Now-a-days a man who permits himself to be thus afflicted, gives evidence of a want of prudence which makes his miserable condition a sort of penalty. Moreover, since his prudence is really an unwillingness to help bear the losses of others the condition is really deserved. Short-sighted stinginess about insurance premiums is thus punished.

Another cause of undeserved pauperism in old age is the loss of property, through endorsing for friends and especially, through signing bonds for friends. An endorsement on a note is bad enough, but the note falls due and that is the end of it. Your fate is soon known. But a bond is another matter. Liability is discovered often after years have passed. From this our modern surety system (or fidelity insurance) offers complete protection. To be sure, if the person bonded defaults, the surety company sees that he is prosecuted if it has to pay, which course strongly influences friends, and relatives to make good the default. But this is a good aid to an evil. It tends to deter men from defaulting and it gives friends and relatives a chance to decide about making the amount good, instead of compelling them to do so as of old. There is a vast difference between signing a cheque of your own free will, and signing one which you never dreamed of having to sign, just because your name at the bottom of a bond calls for it.

Among the dependents whom we are investigating, we would find also, a sprinkling of persons who lost their all by the *sinking of a ship* in which

they owned shares, we find others who lost their all in wind storms, others who invested in worthless bonds, others who were robbed by burglars, others whom explosions had ruined, others who were pauperised by suits for damages for personal injuries. Against each of these things a prudent man may now protect himself, and society is protected also.

#### THE CLASS OF THE DEFECTIVES

Let us pass now from the dependents to the defectives. First of all, among these, we discover a large member of the crippled herds of industrialism. These have been incapacitated in the process of production and transportation of commodities mainly through faults of their own, or of any-body else, for that matter, but through the inevitable operation of mechanical laws, those men have been maimed and disabled in the midst of their prime. They are like the wrecks of battle that they are not honoured or cared for as a matter of right, but as a matter of charity.

Insurance is doing a great deal to eliminate this class of defectives from the list although, confessedly, much yet remains to be accomplished. Accident insurance is now offered at reasonable rates to almost everybody whose time has a money value. Thus, it is possible for all, save those between whose incomes and the risks of their occupations there is a serious disproportion, to protect themselves. Unfortunately the necessities of men under our industrial system bring it about that in fixing wages little respect is had to the risks of the occupation. Consequently there are men who are yet unable to protect themselves. Moreover, a class among the dependents to which I did not refer, is composed of the families of those unfortunates.

Insurance offers complete protection to these. Companies are to day offering what they call contribution insurance, which protects the employees of any establishment against all accidents occurring during and arising out of their employment. They would gladly extend this insurance into annuities during the disability if the call for it existed.

But this insurance finds at present but a limited field, while employer's liability insurance, which really means a system by which even less is paid to the injured than when there was no insurance, is popular. We have no reason to decry this insurance, which is perhaps based on a wrong theory but which is leading to a true system, as inevitably as cause ever produced effect. But, in the interest of common justice, we have every reason to urge a new principle, which is that, in order that all costs of production and transportation should appear in the price of product and be paid by the consumer, and that no part of the costs should be finally borne by producers who do not enjoy the product, every contract of employment

should include in addition to the wages as compensation to the employee, the carrying of insurance in a solvent company payable to the employee in case of accidental injury arising out of his employment and to his dependents in the event of death because of such accident. Perhaps, no single extension of the principle of insurance would at this time remedy so great an evil in modern society.

#### PROVISION FOR THE SICK

Another class of defectives are they who have been incapacitated by illness or chronic disease. At the present moment the protection offered against this sort of calamities even in the United States is very imperfect. Some of the fraternities offer sick benefit. Recently also several stock companies have amended their accident policies to cover disability arising from certain diseases. Another stock company is offering hospital attendance or a weekly benefit during the continuation of a larger number of illnesses. Some of the fraternities are also offering lump sums as benefits upon the demonstration of complete and permanent disability. But comprehensive protection is yet wanting here, though it has been a feature of insurance in England and elsewhere for a long time and thoroughly tested. When it is perfected and generally patronised, it will eliminate a large class from the number of defectives who are, with their children, dependent upon public or private charity.

Germany has, by its State insurance system, already placed the support of such persons as belong to either of these two classes, upon the basis of a right instead of a charity. And during last few years, both England and France have enacted laws which provide for compulsory insurance of employees. This leaves India with its numerous Native States, the only great, civilised country that has done nothing to extend the operation of the principles of insurance so as to benefit the state and society to the utmost.

Mr Fouse has spoken against compulsory insurance, and referred to the scheme of compulsory insurance undertaken in Germany, which was devised by Bismarck. This is the sort of thing you would expect from Bismarck and which would be allowed in Germany, but under the conditions existing in England and America, such compulsory insurance would be impossible. State institutions have been failures on account of the small amount of business they have undertaken. There have been no agents and regular organizations and as a result these companies get left in competition. The Public Insurance Department of the Mysore State Insurance is a concrete example of this kind in India. But they afford a basis of comparison for other companies as to economy.

#### CONCLUSION

Now-a-days, in a purely business way and without sentiment, we see that our interests are

individually best served by acknowledging our solidarity. We do not know that you or I will die this week, but we may know that out of a large group of persons of our age a certain number will die this week approximately. Therefore, combining before a common danger, we propose to protect each other's dependent widow and children through insurance paid for by each for the selfish purpose of protecting his own. Is there in anything a more apt illustration of the complete agreement of altruistic practice with the theory of enlightened selfishness?

Insurance is the equalization of fortune. I have been already criticised for saying this. But it is true. If all the ill-fortunes of the world were equalised by insurance, all the good fortune would also be equalised. This protection may even be extended over fields which we have considered belong only to crime and not to misfortune. My murder is as much an accident to me as if I had fallen and broken my neck. The robbery of my home is also an accident to me. Already Insurance Companies are protecting against these things. Yes, even the field of fraud is partly covered. Bonding, credit insurance and fidelity insurance for securities are now features of our commercial life.

Our laws which reflect our past social development are conceded to be deficient in the matter of remedies. The murderer goes to the gallows, but the family of the victim goes to the poor house. The defaulting bank clerk may be arrested and sent to prison, but no provision is made to keep the thrifty depositors from becoming public charges in their old age through no fault of their own. This deters men from committing crimes and frauds by the fear of punishment, but it offers no adequate relief to the victims.

This is the function of Insurance. The thorough application of its principles will so protect the individual from misfortune that his advance will be truly the measure of his desert. Each will be equally handicapped in the race of life by the average misfortunes of their running mates, none will be overwhelmed.

The more clearly men see their interests, the more surely they see that in all such matters these interests are common.

The same principle of united action in the face of a common danger, which applies when assaults are made upon a people by their foes, applies with even greater force to meeting perils that are always with us. Moreover, even in the matter of prevention, insurance is most influential, no distant prospect of loss will influence one like a smart, prompt increase of his insurance premium. Such discriminating increases have in a single generation changed the factories of New England from the most dangerous fire risks into the safest, and have thus saved millions of dollars of valuable

*property* The development of life and other personal insurance will ultimately have a similar effect upon the hygienic conditions and upon precautions against accidents

When all these things are taken into account, it cannot be denied that insurance is the most significant practical development of this marvelous century. It is nothing short of the enunciation of a new principle, that is, vitally necessary for the world's advance, the principle of practical, working solidarity. Upon that principle will surely rest the justice of the future. It is the principle, also, which is indicated in the famous command of the Nazarene who did not say "Bear others' burdens," but did say "Bear ye one another's burden."

He who helps to carry the common burdens of this kind, and he only deserves to have his burdens carried, and the load which crushes the individual is lifted by society, by all men, as if it were a feather

The problem of insurance is to increase its social efficiency, to bring its benefits to a wider range of the people. Unless this shall be accomplished we must look upon life insurance in the same spirit that we do upon any other form of business enterprise. Unless the advantages of life insurance can be brought to the great masses of the people it cannot justify its claim to be a social institution of the first magnitude and importance

## TOPICS OF THE TIMES.

### AGRICULTURE.

#### Irrigation Work in India.

MR. WARD ON POSSIBILITIES

ON July 12, Mr. T. R. J. Ward, the Inspector-General of Irrigation in India, presented the prizes and certificates to the successful students of the Thomason College. In the course of an address, after a cordial tribute to the Principal and the Professors of the College, he said

I will now pass on to interest you in the progress of civil engineering in India. I may assume that you are all keen and anxious votaries of the profession you have chosen for your life's work and in consequence, during your reading, that you have noticed the vast sums that the State has set aside this year to make good the depreciation of our railways brought about by the magnificent service they rendered the Empire during the war. You have also noticed that big projects are afoot to connect India with Burma on the east and with Europe on the west, while inside India many important lines have yet to be constructed and large bridges built. You will also have read many articles on the need of better roads and more of them, while unbridged streams and torrents everywhere challenge the administrator to provide the funds for their conquest. The large cities in India that have been provided with modern sanitary and water supply installation declare that they have outgrown them and demand more earnest attention from the administrator and engineer, whilst the innumerable towns not yet furnished with these requirements of modern civilisa-

tion are fully alive to their needs. As for buildings, the war seems to have brought home to us that we are all inadequately housed and the demand is for better planned towns and more airy houses, with public buildings more in accordance with the traditions of an age that has been stirred to its depths by the sacrifices made in the war.

#### PROSPECTIVE PROGRESS IN IRRIGATION

To pass on rapidly to irrigation, the branch of civil engineering that has occupied me during my professional life, the projects on the anvil in the different provinces in India will provide works which, when carried out, will about double the outlay incurred on irrigation works in India and about double the present canal-irrigated area. The borrowing of money for productive irrigation works was initiated by Lord Lawrence. Even allowing for the greater confidence with which such works are embarked upon now that we have so much more experience to guide us, it must be a generation or two before the works now in contemplation can be built and even longer before they will reach their full irrigating capacity.

With special reference to your own Province, you will be rejoiced to hear that the great Sarda Kichha Project has been sent up to the Secretary of State for sanction, while the Sarda Canal for the irrigation of the Province of Oudh has been sent back to be extended so that the project may provide that all the water available may be fully utilised. This project was got out by Colonel Forbes in 1870



Had it was only sent up again to the Government of India to give them the information required to come to a decision about the destination of the waters of the Sarda, whether these should be partly used to sustain tracts more liable to droughts than those in Oudh or to be wholly allotted to that Province. At the time the Irrigation Commission threw out the suggestion for a formidable canal stretching from the Sarda to the Jamna that has been so thoroughly and ably investigated by your devoted Professor of Engineering, Mr. Anthony, the people of Oudh were averse to irrigation. But the advantages of cheap water in agriculture were not so widely appreciated 15 or 17 years ago when Lord Curzon's Irrigation Commission sat as they are now, and in deference to the wishes of the people as voiced by their local Government it has been decided to use the waters of the Sarda in its own valley. The reasons for the change of opinion to which I have just referred are not far to seek. Originally the purpose of irrigation works was to help the cultivator in bad seasons, but the good roads, magnificent railways, fine docks, and great steamships have brought him into the markets of the world and he is now able to grow crops at a profit. To do this efficiently he requires a reliable water supply and thus it has come to be that irrigation works must now be constructed in the most up-to-date way, as free from defects of any kind as the railways, docks, and steamships built to transport the produce that the canals have irrigated. To this end the older canals are being remodelled, a work requiring a thorough knowledge of the existing irrigating system as well as a complete understanding of modern irrigation construction together with great administrative capacity to interest the cultivator in the improvements about to be made and retain his confidence during the time of disorganisation inevitable when channels are being remodelled.

#### **CANAL CONSTRUCTION**

I need hardly say that the foundation on which successful modern canal construction is built is drawing, estimating and surveying. It is fairly obvious that unless you can transfer your ideas clearly and accurately to paper and correctly appraise them they are hardly likely to bear useful fruit, and constructions that must be fitted to the earth's surface can

only be economically and efficiently constructed if the surveys, that is the earth measurements, are accurate and complete. The canals to be built from the Sarda River will test your training to its core. An irrigation canal should be designed from the tail upwards. First the village channels are worked out, these trace upwards, gather together into distributaries, and these again follow ridges that lead to branches of the main backbone of the country that, followed by the main canal, leads to the point on the river from which the whole irrigation system can be properly fed. This is the simplest and most certain way to design, but it involves foresight. The surveys must be started some two or three years before the construction begins. But the gain to the irrigator who has the good fortune to be provided with a well-thought out scheme of channels is not to be priced in money alone. He is grateful to the engineer who will lay out and build his channels for him in the first instance. But if he is left to his own resources and has to lay these out to the best of his ability without knowledge and experience, he must of necessity make many mistakes but before these make themselves evident to experts a complicated body of water rights will have grown up and the energy and driving power required to remodel the channels is then out of all proportion to that required to construct them properly before water is turned on. And it is very doubtful, I think, whether full efficiency can ever again be attained. This is but an example of "the more haste the less speed," a precept that applies to all engineering work. Hence the exordium, practise your art with singleness of purpose, nothing is more bitter than the feeling that a work you have built with great pride and energy might have been better built had you had more practice.

#### **VALUE OF CRITICISM**

It is here that the great value of criticism comes in to the constructor and furnishes a reason why plans and estimates are made as complete as possible and fully discussed. Appreciative criticism can move mountains, but even destructive criticism should not be condemned.

I have said as much about works as you have leisure to consider now. Incidentally, I hope I have enabled you to realise why I have



examined your drawing, surveying and engineering courses with so much interest and I am glad to hear from Mr. Anthony that you come to his classes well furnished in applied mathematics and well equipped to maintain the reputation that Roorkee engineers have gained in this respect. You all know that an engineer is responsible to produce his calculations whenever required, and you will, I feel sure, make it your invariable rule in life to

make complete calculation for every work you build, never mind who designed it or how often works of its type have been built before. In this way you will not only acquire proficiency in calculations and avoid building works that may buckle or break, but you may discover mistakes overlooked by the most expert of us, your predecessors, and thus save your client from avoidable loss.

### Efficiency Methods on Farms.

#### AMERICAN ENTERPRISE

Efforts to increase the volume of production and at the same time, reduce the amount of manual labour involved to a minimum always have been prominent characteristics of American industry writes "Dun's International Review," and the readiness with which manufacturers in the United States discard old and install improved machinery and methods regardless of the expense involved when they present possibilities of reducing production costs largely accounts for the fact that, in spite of shorter working hours and a much higher scale of wages, they are able successfully to compete with other countries in the world's markets. "Efficiency" has become the shibboleth of the American manufacturer, and this means the greatest possible output with the least expenditure for labour.

Now, while the so called efficiency methods have been largely regarded as pertaining chiefly to the factory and shop, it is becoming more generally recognized that the farm is also a factory, although a much more complicated one and more subject to abrupt changes in conditions such as those in the weather for instance, and there is a growing disposition among the farmers of the United States to proceed along the lines that have proved so successful in other industries. There are many labor and time saving agricultural implements and machines to assist them in their efforts and the progress already made is quite remarkable.

Prior to the appearance of the harvester about seventy five years ago, the gathering of all grain was done by hand and since the invention of that wonderful machine there have been introduced not only a countless number of improvements to that device but many new implements for other purposes. In fact, there is now hardly any class of work on the farm that cannot be done wholly or in part by machinery of some kind, and the displacement of animal by mechanical power is proceeding steadily, especially since the gasoline and kerosene motor has been rendered suitable for farm work. An excellent illustration of what the farmer accomplishes through the use of modern mechanical appliances is provided by the estimate that sixty years ago it required between four and one half and five hours' labour of one man to produce a bushel of wheat, as against less than thirty minutes to day on a properly equipped farm.

But great as this progress has been, there were many thousands of farmers in the United States up to a short time ago whose conservatism prevented them from taking advantage of the improved labour saving implements that

were at their disposal. They were content to carry on their operations with their single plows, one horse cultivators, straight tooth harrows and other tools, each of which called for the attention of a man, and it needed the outbreak of the war, which created a vast shortage of labour by taking their sons and other help for the army and for the production of munitions to compel them to seek means that would enable them to overcome this handicap.

#### USE OF TRACTORS

A tractor of some kind was of course the best solution of this problem, but a great many farmers lacked confidence in their ability to handle machinery of this kind. In instances like this good results were obtained by using a larger amount of animal power for plowing, harrowing, harvesting and other purposes and, with teams of six, eight and even ten horses, gang plows, twenty disc harrows and much wider harvesters and mowers were rapidly put into service on numerous farms. By this method one man could do from two to four times as much work as was formerly customary with a single team, but nevertheless for general all around adaptability, speed, reliability, low cost and the results attained, the tractor, together with the various devices specially designed for use in connection with that machine, has conclusively proved its superiority to any kind of animal power.

There appears to be a widespread impression that a tractor is a paying proposition only on the largest farms, and though this was probably true up to a comparatively recent date, it is very far from being a fact to day, because these machines are now made in such a wide variety of styles and sizes that a farm must be of very moderate dimensions indeed if it cannot use one with profit. Even the smallest are strongly and sturdily built and will give satisfactory service when used for the purposes for which they are designed. As a matter of fact, many owners of the lightest equipments find them a great convenience for working over the ground in their orchards, cultivating corn, beans, potatoes and similar crops and for many other tasks for which the heavier and more cumbersome machines would not be suitable.

With a total of more than 7,00,000 skilled farm labourers taken by the draft to say nothing of the number attracted to industrial centers by the high wages paid by the munition plants, and confronted with the imperative necessity of increasing the production of foodstuffs, naturally the most striking examples of offsetting the reduced labour supply by the employment of machinery have been provided by the great grain regions of the western part of the United States. Many farmers

who formerly depended upon horses or mules for plowing, harrowing and seeding promptly turned to the tractor and the results obtained were so satisfactory that predictions are now being made that the elimination of animal power on the farm is almost in sight.

But while the tractor as a source of power has met every demand made upon it, and at a much lower cost than where horses were used, an important factor in its labour-saving possibilities has been the introduction of a number of implements that practically take care of themselves while at work—among them being plows, harrows, seed drills, etc. It, therefore, became a not uncommon sight to witness the planting of a crop of wheat in a single operation, the tractor dragging behind it the plows, harrows, seed drills and covers.

#### RISING ECONOMY

Some figures showing the economies in labour and other costs secured by this method as contrasted with the old system of animal power may be interesting.

Disregarding the advantages derived from deeper plowing and the greater rapidity with which the planting can be done, one of the largest outfits of this kind will take care of a 12 bottom plow with the necessary harrows, seed drills, etc., and plant fifty or more acres of wheat in a 10 hour day, and at the same time require only three men to operate it. Contrast this with the average for plowing along with one man and two or three horses of from two to two and one half acres per day. Moreover, when rapid planting is necessary, the outfit can be worked for the full twenty four hours by employing extra shifts, as most of them are equipped with electric lights.

Of course the number of farms large enough to render the employment of outfits of this size profitable is limited, especially as their work is confined to a somewhat narrow range. But every farmer no matter how small his holdings, who has suffered to some extent from the inadequate supply of labour, has been compelled to adopt different methods. Necessarily, the man cultivating a moderate area cannot afford to invest in an expensive outfit that can be used for only one or two purposes, and as the small farms outnumber the large ones, manufacturers of tractors and other implements have found it advisable to produce machines that are reasonable in price, that can be operated by one man and that will give satisfactory service over a wider range of work than the expensive single purpose equipments.

There are many tractors now on the American market which are regarded as being ideal for the farmer who cultivates from 100 to 600 acres, and who does not confine his efforts to the production of a single crop. These machines are moderate in price and can be used successfully for so many different classes of work that they are rapidly revolutionizing American farming methods. These tractors vary from ten to twenty horse power and are widely different in design but all are intended to be operated together with the necessary plows or other implements, by one man. One of these machines is of the track-laying type and is very popular for use on uneven ground, hills or damp, sticky soil, another, of the ordinary four wheel type, is excellent for all ordinary purposes, while still another is designed so that the entire engine is suspended on two large wheels,

with a connecting frame for attaching it to specially devised plows or other implements.

The farmer who has used one of these tractors in connection with the proper implements has come to the conclusion that the horse is a very expensive motor because an average day's plowing with a two or three-horse team is not more than two and one-half acres at the best while the cost for every hour a horse works is estimated to be twenty cents, or about 2 40 per acre, exclusive of the man's wages and interest and depreciation on the cost of the outfit. After this, the ground has to be harrowed or otherwise prepared for the seed. On the other hand, with a three bottom gang plow one man with a small tractor can easily plow ten acres per day at a cost of \$ 6 00 for fuel and oil or about 72 cents per acre, and in addition can hitch a disc or other harrow and a soil packer behind the plow, thus preparing the ground for the seed at one operation—a matter of no slight consequence when time is at a premium and labour is lacking.

Only a few years ago it was generally thought that tractor cultivation of such crops as corn, potatoes, beans, cotton or similar plants grown in rows or hills was not feasible, and it was the universal custom for farmers to use one horse, or two horses and a small walking or riding plow or cultivator for this work. The up to date farmer now hitches his tractor, which has a clearance of 23 to 30 inches to three or four riding cultivators of special design, each of which, while requiring a man to handle it, will thoroughly cultivate four rows at one time. This means that three or four men will do from twelve to sixteen times as much work as one, which is possible because the tractor can be driven at a much greater speed and can be kept much more steadily at work than can horses.

But there are many other ways by which the modern farmer, with the aid of his tractor, conserves labour. When it is not desirable or possible to hitch his grain drill behind his plow, he is not satisfied to proceed in the former way, using a single drill with a team of horses. Instead, he buys one or more additional implements of this kind and attaches them to his tractor. One man can attend to them all, as well as the tractor, as the latter can be equipped with a self-guiding attachment which keeps it moving in a straight line. Similarly, in mowing, he uses either the largest mower he can obtain or perhaps, two, and when the hay is cured, it is automatically loaded into a wagon and moved to the barn, into which it is transferred by a motor operated fork with the expenditure of about one tenth the time and labor that this work requires when done by hand.

#### OTHER IMPROVEMENTS

One of the most laborious and disagreeable tasks on the farm—the loading and spreading of manure—is now practically eliminated, this being accomplished with the assistance of the motor operated manure fork and the improved mechanical manure spreader. The farmer now drives his manure spreader alongside of the manure pit or pile and loads it in an instant with his motor fork, which is of the same nature as the hay fork above referred to. Then it is only a matter of dragging the spreader to the point where it is to be deposited and putting the gear into operation, the manure is automatically spread over the ground much more evenly than would be possible by any other means.

The tractor has also greatly facilitated the work of harvesting wheat, corn, potatoes and other crops. In the case of first named crops, it enables the reaper and thresher to be used in combination and the grain is delivered in perfect condition to be marketed. The latest machine is a corn harvester, which is reported to be giving excellent results. It cuts and bundles the stalks, detaches all the ears and husks them, all in one operation. Large potato growers have always complained that the heavy, cumbersome diggers placed too great a strain on the horses to allow them to be worked steadily, but as a result of the advent of the tractor a digger has been introduced which not only secures every potato, but sorts them into several sizes. This machine requires more power to operate than would be feasible to obtain from less than eight horses, but with the assistance of the tractor this is a matter of little consequence and wherever these vegetables are grown on an extensive scale, it will doubtless help materially to reduce the cost of production.

The milking machine is another device that the scarcity of help has rendered almost indispensable to the dairy

farmer, not only because it will do from four to twelve times as much work as can be done by hand, according to its capacity, but because it frequently improves the flow of milk, owing to its being easier on the cow than the average hand milker. It is so simple to care for and operate that many farmers who find it impossible to obtain men workers put these machines in charge of boys and girls. In addition, it has been found that the elimination of hand milking, which is universally recognized as one of the most disagreeable tasks encountered on a dairy farm, renders it much easier to obtain a desirable class of labor.

The foregoing are among the leading, but are only a few, of the many devices by which the up to date farmer has been able to increase the output of agricultural products in the face of a greatly depleted labor supply, and the superiority of the improved mechanically-operated appliances, due to their economy in both time and labor, has been so conclusively proved during the past four years that already many farms have entirely discarded horses, mules and other animals as a necessary part of their operating equipment.

## INDUSTRIES. HOUSEHOLD HINTS.

By Mr. K. R. Chakravarti.

### CARE OF UTENSILS

**U**TENSILS which are being used every day for cooking wear out very soon by rubbing with sand to get rid of the black crust that usually forms owing to the burning of fuel for cooking. This rubbing with sand not only wears out the vessels but also hinders the palm of hands engaged in the operation. Both these troubles can be avoided by using charcoal stoves for the purpose of cooking. By the use of charcoal stoves, the house can be kept clean without smoke and the necessity of one attending to the continuous burning of wood can be avoided. The health of the person attending to the cooking will be excellent as there is no necessity of exposing her or his eyes to the smoke. The advantages of using a charcoal stove can better be experienced than explained.

Iron charcoal stoves can be had from hardware merchants or blacksmiths. When these are considered to be a little too costly any one can make one of out of clay and sand with small rods of iron kept, just over the middle part of a cylindrical shaped oven, to hold charcoal when burning. When iron rods are not available a tin sheet cut to the size and perforated with a nail so as to allow free access of air, can be used. Some are under the impression that charcoal stoves cannot be advantageously substituted where the food has to be prepared for a number of persons but is meant only for a family comprising of two or three souls. It is only a misnomer. I have seen and experienced that any quantity of food can be prepared over charcoal

stoves, more expeditious and with less cost than by using fuel. The heat given out in a charcoal stove is more intense and uniform and consequently not more expensive than fuel.

### APPLICATION FOR PRICKLY HEAT

Prickly heat is no doubt one of the most extremely annoying forms of urticaria that the inhabitants of the hot parts of our country are being molested from. Many applications for this have been suggested and their efficacy strongly urged by the various correspondents of the Medical Press, who propose them, but none of them seem to be generally efficacious. Thus, Sodium Bicarbonate, in strong aqueous solution, has long been a domestic application in general use, but it has been experienced that it fails probably as often as it succeeds. A weak solution of copper sulphate has also been highly extolled, only with the result that a very large proportion of those who resort to it, meet with disappointment. So we may go on citing remedies which may sometimes give relief but fail in the large proportion of cases. In this trouble, as in almost every other, the idiosyncrasies of the patient go to play a great part in the effect produced by the remedy. The skin eruptions are generally caused by congestion of the capillary vessels of the skin and anything that tends to relieve this congestion will give relief, at least temporarily. In this case, as almost in every other, prevention is better than cure. One of the primary causes for the congestion of capillary cells is constipation which is caused by the excess of heat. Keeping the

bowels clean by artificial means, such as flushing etc will tend to keep the capillary vessels healthy. It should be borne in mind that this precaution should be observed invariably when the efficacy of any external application has to be experienced.

#### CHEAP HOUSE-HOLD APPLICATIONS

Sandalwood paste obtained by rubbing wood on stone applied to the body will give a very agreeable feeling and healthy effect. When this is found to be rather a little mild, an admixture of Neem wood paste will give better results.

A bath powder prepared out of oil cake of mahua seeds available in our country is found to be highly efficacious in respect of skin eruptions. Malwa Tree (Bot Name *Bassia latifolia* is termed Hippur in Tamil, Ippu in Telug, and Hippu in Kanarese. The process of preparation of powder is as follows. The oil cake is pounded into powder by means of an iron pestle and it is soaked overnight in hot water pouring as much as that water will come to the level of powder. In the morning the powder shall have swollen in quantity when it is taken out and dried in the sun. When it is completely dry, it is ground into powder in a grind mill. This powder is improved by mixing one fourth of its quantity of soapnut powder and a little perfume.

#### EMULSION

Putting vaseline as the base it could be converted into an agreeable application for prickly heat. Since it is only an external application, the relief cannot be expected to be permanent unless the precautionary steps in respect of keeping the bowels clean be strictly observed. For one ounce of vaseline  $\frac{1}{2}$  oz of Ether sulphuric,  $\frac{1}{2}$  oz of rectified spirits,  $\frac{1}{4}$  oz of chloroform and 10 drops of menthol oil have mixed by rubbing and the whole kept in a screw copper pot. Addition of 10 drops of liquid carbolic acid will enhance the curative efficacy. It is sure to relieve the itching and burning sensation. By repeating this application and keeping the bowels clean, the malady could be got rid of entirely in a few days.

Another observation, in these complaints is as essential is keeping the bowels cleaned and it is in respect of underwears. The salts formed by the evaporation of sweat on the cloth tend to give rise to the disagreeable sweat boils. It is these sweat boils that cause the itching burning sensation. Renewing of undergarments twice a day will go a great way in preventing the skin absorbing the salts, which give rise to the malady.

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#### Small Trade Recipes.

##### CHEAP TOOTH POWDER.

Take country gypsum (raw) as the base and pound it into powder sifting it at the same time

Mix with it powdered catechu in proportion of two ounces for a lb. If the gypsum powder is four pounds add soap powder 2 ounces, finely powdered cinnamon one ounce, sifted sugar 2 ounces, rose scent 21 drops, carbolic acid 1 ounce, dried ginger powder one ounce, tobacco powder  $\frac{1}{2}$  ounce, alum powder one ounce, flowers of blue vitriol (copper sulphate) 10 grains, and menthol crystals  $\frac{1}{2}$  ounce. Mix all these ingredients and keep in a tight screw cup tin. This powder, though cheap, will be found highly efficacious.

#### HOUSEHOLD BISCUITS

In the absence of a specially constructed oven for baking bread and biscuits, it is deemed impossible to prepare biscuits. But it is not so. Biscuits can be prepared easily by means of some appliances. Perforated pots such as the one in which ground nuts are fried can be used as a pot. This pot placed on charcoal fire with charcoal half full so as to fill up the portion perforated will serve the purpose. Take one pound of American flour and squeeze it with two ounces of water. The squeezing should be continued till the mass becomes uniform and soft. Then add two ounces of sugar and four ounces of ghee and rub it well so that the ingredients mix well. Put in some cardamums and make them into small round pieces. Take a tin and spread the small cakes on it. Apply heat by means of charcoal till the charcoal inside the pot also catches fire. When it is blazing inside place the cakes that have been put on the tin plate inside the pot and cover another earthen tray full of embers over the pot. In about five minutes the cakes inside shall get burnt and they have to be removed and another tin plate with cakes can be put in. In this way, biscuits can be prepared for household use.

#### CANDIED LOZENGES

Lozenges as every one knows, are being highly favoured, by one and all and especially by children. The preparation of lozenges does require machinery and consequently a large outlay. But the same can be prepared in the form of sugar candy. Take refined sugar for the preparation make it into a concentrated syrup by heating one pound of sugar with two ounces of water. Put in the required colour,  $\frac{1}{2}$  ounce of tartaric acid and continue heating. When the syrup is so as to give tread when cooled. Add either peppermint or Peppermint essence, and before it is cooled down, pour it into a shallow tray made of iron or tin and allow it to evaporate. In two or three days it shall have crystallized leaving some traces of liquid on the surface and this liquid is what is termed molasses, which cannot be candied. Molasses can be separated by pouring the candy into another tray which has a slanting position so as to allow the molasses run down. When the candy is freed from molasses it could be broken to the required size and made saleable.

## TRADE.

### Japanese Competition.

#### POSITION REVIEWED

**A**DDRESSING the London Chamber of Commerce, Mr E T Crowe (Commercial Attache to H. B. M.'s Embassy at Tokio) said he was of opinion that the danger of Japanese competition was not serious, provided that Great Britain soon returned to normal conditions, that the output was not unreasonably curtailed, and that profiteering was checked. The fact that Japanese industry was in a state of transition from the cottage to the factory, must affect the quality of her goods for some time. Japanese labour was plentiful but not very efficient. Roughly, Japanese labour cost fourteen shillings for males and nine shillings and four pence for females for a seventy-hour week, but the wages must advance owing to the rising cost of living. Comparatively little research work was being done in Japan, and most industries were still in the imitative stage. Japan had practically no iron mines, and was dependent on foreign sources for nearly all important raw materials. Her coal was very expensive and her means of communication very defective. Japanese goods were inferior in quality, but considerably cheaper than the British, and were generally non-competitive, as they were of a different grade, but the demands of the world would be so large for many years that there should be plenty of room for both British and Japanese goods. He did not doubt that Great Britain would retain her position as the greatest trading nation.

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### Big Shop Trust.

#### SCHHEME TO ABSORB BRITISH MULTIPLE STORES

The announcement is made by a *Times* correspondent of a vast scheme to organise a chain of multiple shops throughout the United States and the entire world, which will be backed by some of the most powerful business interests in the United States.

The enterprise will be undertaken by a company calling itself the United Retail Stores Corporation, having a capital, to start with, of £20,000,000. The new company intends to open retail stores all over the civilized world for the sale of all kinds of products principally dry goods, groceries, food-stuffs, tobacco and confectionery.

Existing companies controlling chains of multiple shops in various parts of the world will be absorbed either by purchase outright or the exchange of stock, or else new chains will be established. The scheme will start with the British Isles, and certain countries of South America and the East. The promoters expect that great economy will result from the wholesale buying of standard commodities on an enormous scale.

In many instances supplies will be manufactured by the company itself, or perhaps produced on its own farms. The principal men behind the scheme are Mr George W. Whalen, Mr James B. Burke, founder of the American Tobacco Company and the United Cigar Stores respectively. Since the dissolution of the American Tobacco Company by the Supreme Court in 1912, Mr Duke has been devoting himself exclusively to the British American Tobacco Company.

### BUSINESS MAXIMS.

Fix your programme the previous night, making due allowance for emergent calls.

Stick to your business programme.

Carry out your resolutions fearlessly and promptly.

Answer to-day's letters to-day.

Be five minutes before time, like Napoleon.

Better to be a little beforehand than a little behindhand. A man lost an Order for £5,000 worth of goods because he was two minutes

late. The boss did not know whether he would come and had gone to order elsewhere as he was bound to settle "to-day."

The law of Necessity is one of those stern laws by which the Almighty rules the World.

You will be behind if you fail to study the prudent art of Concentration. Pin your mind down to master the point before you as if it were the only thing you had to through all Eternity.

## FINANCE.

## Indian Exchange and Gold.

## THE OFFICIAL OBSTACLES

A press *communiqué* issued from Simla on the 21st instant states that the 'Secretary of State' has authorised the Ottawa Mint to sell on his behalf telegraphic transfers on India without limit of amount, for gold to be tendered at that Mint at the rate of one rupee for 9.1168 grams of fine gold." This means that future shipment of gold from the United States to India will now be diverted to the Royal Mint at Ottawa where the gold will be held on account of the Indian Currency Department on which telegraphic transfers will be issued at the stated rate. It will also help to maintain the cross rate between New York and London which has lately developed considerable weakness as the gold can be sent back from Ottawa to New York in case of emergency. It will also lead to considerable saving of freight and insurance charges, but it will not meet Indian requirements as what India wants is the permission to import gold and sell it in the open markets. India does not wish, observes the financial correspondent of the *Times of India*, the gold due to her in balance of trade to be locked up in the Mint at Ottawa.

## INDIA'S CLAIM TO SOUTH AFRICAN GOLD

The South African correspondent of the *Times of India* wrote a few weeks back of the impending crisis in the Rand Gold Fields, and quoted the President of the Chamber of Mines as saying that nothing could prevent a number of important gold mines from ceasing operations in the next few months. About one-third to a half of the mines were making at actual loss, and profits had been reduced to a tenth, as the working costs of the mines had advanced enormously during the war, and the price paid for the gold remained the same as before. One means of relief suggested to the mine owners was the sending of about £15 million of gold bar, a year to India where a high price could be secured in the open market, and also a favourable exchange. The desperate condition of the South African Gold Mines, and the grave effect of a reduced out-

put from the chief centre of gold production in the Empire, has at last led to measures being taken in London to secure an enhanced price for Transvaal gold. It has been officially notified in London that the Bank of England now permits the export of African gold from London and that the gold is available to the highest bidders. As a result of this notification a trial shipment of oz. 50,000 fetched 87s per oz. as against the Mint rate of 77s 10½d. owing to the profit in exchange on shipments from London to New York. The enhanced price on the shipment to America due to the exchange is about 8 per cent more than the London Mint price, but no premium can be secured on the gold in the U.S. when the Mint is selling gold freely to the public. If the gold had been diverted to India, and but for the Indian ordinance it would have been diverted to India, the benefit to the African mines would be 25 per cent in exchange (for Indian exchange has advanced 25 per cent since 1914), and also a heavy premium, because the premium on gold in India at the present moment is about 50 per cent. That South Africa is on the verge of shutting down its gold mines, that India is willing to pay a fully remunerative price to these mines but cannot import the gold, and that the gold is diverted to a country where the price is much less than in India, are anomalies which need to be rectified soon. We have repeatedly urged the annulling of the gold and silver ordinances, and every week that passes shows more and more the absurdity of retaining them on the statute book.

## FURTHER RISE IN SILVER AND THE NEED FOR GOLD

The price of bar silver, after advancing in London to 56½d. for ready, closed at 56½d. This makes the intrinsic value of the rupee about 1s 9½d. whilst its official rate is 1s 8d. and this is creating a very uneasy feeling in the exchange market, with corresponding nervousness in most other markets. A rumour is going round that exchange is to be raised to 1s 10d. but prominent bankers and other

business men think it unlikely that Government will make such a move till the Currency Committee have made their report, and which is expected about the end of October. At the same time it is recognised that the exchange situation has once again reached an acute stage in view of the great export activity in jute from Calcutta, and the growing difficulty of financing exports, and it is considered that the only remedy is to forthwith allow a free import of gold into the country. The London *Times* suggests that a portion of the Indian currency reserve of gold should be sold on condition that payment is made in silver rupees, resulting in considerable profit to the reserves, and reducing correspondingly the Indian demand for silver for coinage. The expedient suggested by the *Times* was tried by the Government in 1917, when about £1,000,000 of currency gold was sold by the Government to meet the threatened shortage of rupees, although Government did not insist on payment in silver rupees, and it would have been useless to insist on such payment so long as currency notes could be encashed for rupees. But the makeshift expedient of 1917, will not now suffice and what this country now wants is imports of gold on a large scale. The City of London has to realize that considerable amounts of gold must now be diverted to India, otherwise the finance and trade of India will be confronted with an impossible situation before long.

#### **Bombay Chamber's Views.**

The Bombay Chamber of Commerce endorses the view of the Bengal Chamber regarding the desirability of stability of exchange, although the rate at which exchange may be fixed can only be arrived at by an exhaustive examination of the silver position of the world. On this point, members of the Chamber cannot be expected to be unanimous, as the points of view of importers and exporters naturally differ. In the meantime, the memorandum points out, it is a matter of prime importance to the commercial community that some temporary stability should be attained, and the Committee are of opinion that some definite statement of policy should be made as early as possible, applicable to the period that must intervene before the silver position can be gauged with sufficient precision to admit of an enunciation of the final policy.

Regarding the absorption of silver which has been in a measure responsible for some of the currency difficulties with which the Government are confronted, the Chamber holds that it is impossible to disregard entirely the sentiment of the native of India which leads him to hoard the precious metal. It will be desirable, they say, to put an end to the present embargo on the importation of gold and silver as early as possible even although there may appear to be little prospect of obtaining the supplies in the near future. In this connection the committee notice that in 1916-17 an aggregate of four-and-a-half million pounds of gold was produced by the Indian Mines. "It would seem worth examination whether this might not be utilised in India either as backing for a new gold standard or as a more immediate measure to satisfy in some degree the incessant demand on the part of the natives of this country for precious metals. The Government control must be regarded as a necessary evil in certain circumstances but should be abolished as soon as possible. The present system of maximum rates is open to serious objection because whenever there is pressure on the part of exporters to sell bill, rates quoted by the exchange Banks cease to be effective, and bills can only be sold if the seller will provide some proportion of cover for them."

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#### **Small Savings in England.**

HOW THE SMALL INVESTOR HAS COME TO THE FRONT

The third annual report of the British National War Savings Committee shows that during 1918 the actual amount invested in War Savings Certificates was £108,348,782, compared with £67,010,817 in 1917.

The total number of War Savings Certificates sold since the first issue of the security was 280,701,054, of a cash value of £2,217,543,317. A sum of £9,710,172 has been repaid, leaving a net sum invested of £207,833,145.

An analysis of the contributions of the small investor to State securities shows that during 1918 contributions of £28,700,000 were made to the Post Office issue of National War Bonds. In addition, the increase of deposits over withdrawals in the Post Office and Trustees Savings Banks during 1918 was £38,813,000, compared with £15,683,000, in 1917.



## SAVED DURING THE WAR

These investments, added to the net proceeds of War Savings Certificates, provide a sum of £179,575,000, as the contribution of the small investor during the year, and bring the grand total during the war to £432,711,000.

The work of the Committee during the year was done at a cost of £135,357.

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**Tata Industrial Bank at Lucknow.**

On the 4th August, the Lucknow Branch of the Tata Industrial Bank was opened by Mr. E. H. Ashworth, I. C. S., the Additional Judicial Commissioner of Oudh, and among those present were Mr. Gray, Manager of the Cawnpore branch, and the representatives of the banking institutions in Lucknow. Mr. S. P. Mehtay, Manager of the Lucknow Branch, said the Bank had been established at the suggestion of many business men in these provinces and was the second of a contemplated

network of branches in Upper India. The primary object was to encourage existing Indian industries and also to create and develop further industries.

In the course of his speech Mr. Ashworth said that British enterprise had failed to unearth the hidden hordes of wealth, which he felt sure, existed, lying unproductive in private hands. "Capital," he said, "is the life-blood of industrial enterprise and the industrial system in India is sluggish because the arteries that circulate this life-blood are choked. A new industry sponsored by an established firm of repute may find no difficulty in attracting capital, but for the industrial regeneration of India it is necessary that small industries should be started by obscure persons. It is necessary that the small local concern supplying a local need (which in another generation may blossom out into a provincial or imperial success) should find access to the savings of the petty capitalist."

## TRANSPORT AND POWER.

## Flying in India.

Lord Montagu of Beaulieu, who read a paper on "Aviation as Affecting India" before the Indian Section of the Royal Society of Arts recently predicted a great future for flying in the country.

The East, he said, was more suitable for flying than what we knew as the West, and in the whole of the East there was no country more suited to aviation than India. Whether the most important factor in flying, meteorology, be considered, or easily made landing grounds, or local supplies of liquid fuel there could be but one conclusion—namely that India was an ideal country for aviation. And if incentives were wanted, the land and sea communications of India, both internally and externally, left much to be desired. When one came to consider also the communications between India and these islands, it was remarkable that certain circumstances, some of them commercial and some of them geographical, prevented anything approaching rapid communication being carried on between Western Europe and Indian ports.

## A GAIN IN TRANSPORTATION

It was a maxim now realized by every one who had studied aviation that the longer the distance the greater the gain of the airplane over other methods of transport. Whether we took the shortest possible direct route to India—say, 8,000 miles in length—or the longer journey now being used by way of France, Italy, Egypt, Palestine, and Mesopotamia—some 5,100 miles in length—in either

case many days were saved. As to air mails (carrying airgrams, as he would call them), when daily communication was established it was safe to prophesy that the present block of several days' delay on the Eastern Telegraph Company would be relieved at once. The cable companies, rather than the shipping companies, would feel the competition of airgrams.

When, two years ago, he prophesied that the England to India route would be the first long distance route to be accomplished, and that the accomplishment of it would be a landmark in the history of the world, and be the first useful long distance journey by air, there were many who jeered, as people had always jeered at prophets in all times and in all countries. But already two Handley-Page machines, with Rolls Royce engines had accomplished this flight, about double the width of the Atlantic, and in a few months time regular services would be established without any doubt. In flying between England and India there is a long but well mapped out route to some extent provided with insufficiently numerous but regular stages, landing-grounds, and spare part depots.

With the exception of the flight over the Channel, France, and Northern Italy, no serious climatic disadvantages existed. As regards Imperial or international control, the present air routes to India passed with the exception of France, Italy, and Crete, entirely under the direction of the British Empire. Moreover, when India was reached, it



was by no means a dead end as some might think India was half way between London and Australia, and beyond India are many important parts of the Empire. The winter conditions in Siberia and Tibet would preclude regular flying from China and the East to Europe for many years to come, and the route south of the Himalayas was therefore certain to be used. The Northern Plains of India, from Peshawar to Calcutta, would become one day one of the world's greatest airways. He considered that Heliopolis (Cairo) would be the most important single centre of air transport for the Old World—Europe, Asia, and Africa—for thence would radiate services to East, Central, and South Africa on the one side, and on the other to India and countries beyond.

#### THE QUESTION OF MAIL

In considering the matter of mails and whether it would pay to fly them, it was a question, of course, how much the letter-writing public in India—a small number all told—would pay for increased speed, even if they would pay at all. But the answer to this question could only be ascertained after trial for some time, and would probably have to be considered in connexion with passenger services, as was the case with the present mail train and mail ship services.

Dealing with the question of hill stations, he referred to the difficulties in the matter of landing grounds. At Simla there was perhaps one landing ground possible—namely, Annandale. But very soon aeroplanes would be able to land on an area of ground equal to about four to six tennis lawns, and the Government of India could easily make, in many places, artificial small flat spaces ending in ramps.

Lord Montagu mentioned in passing that Major Tweedie had recently landed at Annandale, and though he believed the machine in which he was flying was slightly damaged, he was the first person so far as he knew to land at a hill station in India, and certainly the first person to land in Simla in an aeroplane.

#### INTERNAL ROUTES

He suggested that the most important internal routes in India were —

1. Bombay, via Delhi and Lahore, to Peshawar
2. Bombay to Calcutta
3. Bombay to Madras
4. Bombay, via Mysore, to Colombo
5. Bombay, via Baroda to Karachi
6. Calcutta to Madras
7. Calcutta, via Cawnpore, to Delhi
8. Madras to Colombo
9. Madras, via Hyderabad, to Jhansi, for Delhi and the north
10. Peshawar, via Indus Valley, to Quetta and Karachi
11. Delhi, via Bikanir, to Karachi

Having mentioned that several of the great princes in India were already keen on aviation, he said that, generally speaking, the less Government control there was over any new development in the world the better. He would say, at the risk of being officially censured for daring to doubt its divine wisdom, that the Government of India had better encourage private enterprise in aviation rather than endeavour to manage all air services and operations itself.

He called attention to what he described as the insignificant drawbacks of the Indian climate, and observed that from September to June on nine days out of 10 the weather was perfect for flying, the visibility exceedingly good, and the average air currents under 10 miles an hour in velocity.

In recent conversations with the Postmaster-General in India, Mr Geoffrey Clarke, he learned with pleasure that he was strongly in favour of air mail services being started in India at once, and hoped that contracts would be sanctioned with private commercial companies rather than any attempt made to work direct through the R. A. C. The Government of India should make contracts with groups or companies really capable of carrying out their contracts in the same way as the sea mails were now confided to the care of the P. and O. Company.

#### PHOTOGRAPHY AND MAIL

It was often asked how soon passenger services by air would be established between India and England. In reply he would say first of all, let us establish for at least a year regular postal services, for the experience gained thereby would avoid loss of valuable lives and the discouragement which was bound to come when only a proportion of the hopes we set out with were realized. Moreover, it would be a long time before it was commercially profitable to fly passengers on account of their weight compared with mails. It was clear that at first the main payable traffic by air must consist of what the Post Office called 'mail matter,' and he was sure that the commercial world in India, here, and elsewhere, when services became regular—the most important point of mail services—and rapid, would use air services very largely.

He pointed out that there was the use of photography for transmitting letters, and said a typewritten letter could be photographed in an exceedingly small compass and enlarged again by the recipient. Probably at least 1000 words could thus be sent for an ounce by this process. *The Times* of a certain day could be thus reproduced in India within three days exactly as the original was published in Printing House square. As to mail services to England, he would like to bring to their notice the fact that the present route, via Cairo, Damascus, and Mesopotamia, was by no means the most direct, and that something like

1,600 miles would be saved by following a direct line from Cairo via Akabah to Basra, the distance being only 790 miles between Cairo and Basra.

In conclusion, he said that, as the Empire of India was the most populous, the most important commercially, and the most vital to us, of all the great dominions of the Crown it should have all the advantages which might be derived from the use of aircraft as soon as possible.

MAJOR-GENERAL DELRY, who presided, said that arrangements were now being made to run a mail route from Cairo to Karachi.

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### **Control of Railways**

THE CANADIAN SYSTEM

(*Times Trade Supplement*)

Recent developments in the Railway situation in Canada and the position of British railways as the result of the war have attracted attention to the scope and working of the Dominion Board of Railway Commissioners. It is this Board which fixes rates and adjudicates upon matters which affect rival corporations both as to construction, routes, and relations with the Government.

The Commission came into operation on February 1, 1904, in accordance with a Federal Act of Parliament passed in the previous year. Writing of the functions of the Railway Commission in May, 1906, Mr. A. C. Killam, K. C., the then Chief Commissioner, said—

The Board is authorized by general provisions to order a Railway Company to do anything required by statute, and to forbid the doing or continuing of anything contrary to statute. The Board is made a Court of record, and is given full jurisdiction to hear and determine all matters, whether of law or of fact, and, as respects the enforcement of its orders and other matters, it is given all such powers, rights and privileges as are vested in a Superior Court. The decision of the Board on any question of fact is binding and conclusive upon all companies and persons and in Courts. There may be an appeal from an order of the Board to the Supreme Court of Canada on any question of law, under certain conditions. An unlimited right of appeal from the Board to the Governor-General in Council is given. The Board may exercise its jurisdiction on complaint of any party interested or it may of its own motion, and is obliged at the request of the Minister of Railways, to inquire into and hear

and determine any matter or thing which, under the Act, it might inquire into, hear, and determine on application or complaint.

A more extended official summary of the powers of the Railway Commission shows that it possesses—

1 Absolute regulative powers in regard to rates, preferences, discriminations, rebates, and secret rates.

2 Supervisory powers in regard to through rates and through routes.

3 Power to compel equal, proper, and reasonable facilities for shipment to all persons and companies.

4 To regulate traffic agreements.

5 To regulate and supervise highway and railway crossings.

6 To investigate into serious accidents, and the causes of accidents.

7 To exercise a general supervision and control over safety appliances and all matters touching the convenience and safety of the public and employees of the railways, the safety of property and the operations of trains and the railways generally.

8 To regulate and supervise the general construction of railways.

9 To supervise the opening and closing of railways in the interest of the public safety.

10 To see that the various railways obey the provisions of the Acts, general and special, under which they operate.

The Board and its functions were enlarged by the Minister of Railways' Bills in 1908, increasing the jurisdiction of the Board, creating an Assistant Chief Commissioner at a salary of £1,800 per annum, with two additional Commissioners at £1,600 each, and giving to the Commission control of telegraphs and telephones in addition to the multifarious concerns already under its charge.

During the war the Railway Commission performed a varied and efficient service for Canada, which included oversight, and regulation of all the railway business of the country—functions which in the United States were divided amongst many State Commissions, and in Canada were becoming more complex day by day.

Public opinion in Canada is not unanimous as to the merits of the question which is now

under consideration by the Dominion Government. Among the masses there is undoubtedly a growing feeling in favour of the nationalization of railways, and in the meantime any discussions of the Railway Commission as to rates naturally expose it to hostile criticism from the public, the railway wage-earners, or from those whose capital is largely invested in railway undertakings.

#### **Professional Engineers in India.**

The movement of the Engineering profession to found an Institution for itself in India passed another stage on Wednesday, the 10th July, when a revised code for the proposed Indian Society of Engineers was presented for the consideration of a meeting held in Gorton Castle, Simla.

The re-drafted code contains the modifications and additions which have been suggested to the Drafting Committee since the great Cal-

cutta meeting of January, and the business of the Local Joint Sub-Committee at Simla was to report on the new code to the Organizing Committee, whose members are too widely scattered throughout India to allow them all to meet frequently without great inconvenience and expense. Consequently, this Sub-Committee consisted, to some extent, of members co-opted from amongst prominent engineers available within reasonable distance of Simla and there was general regret that this area did not include any engineers in private practice or in commerce. The meeting under the Chairmanship of Mr. T. R. J. Ward, C.I.E., M.V.O., M.I.C.E., Inspector-General of Irrigation in India (Chairman of the Organizing Committee) numbered 23, including the following—The Hon. Mr. F. C. Rose, M.I.C.E., Secretary to Government, P.W.D., Mr. R. Meredith, C.S.I., C.I.E., Chief Engineer Indian Telegraph Department and others.

## **ECONOMIC DEVELOPMENT.**

### **Treatment of erring youths.**

A school where erring youths are taught to be good citizens is that of Mr. Tomeoka, principal of the Kateri Gakko in Sugamo, Tokyo. The school has been in existence for over twenty years, during which time over three hundred boys have been taken from unhealthful and immoral surroundings and aided in becoming good men and self-supporting citizens.

Mr. Tomeoka was for years chaplain in the Sorachi prison in Hokkaido, and during his years of work among the unhappy convicts, he came to the conclusion that the best way to save men from being the victims of their wrong habits was to safeguard and train them while they were yet young and when the lawless tendency had not developed to any great extent.

For this reason he established the Kateri Gakko, a reform school for boys from the ages of nine to sixteen. At present there are thirty boys in the institution. Some of them were put there by their parents, because they were unmanageable, some were sent to Mr. Tomeoka by the governor of Tokyo Fu. As there are no juvenile Courts in Japan, Mr. Tomeoka is obliged to get hold of his boys through the police and through the Governor.

As the representative of the "Japan Advertiser" walked through the spacious grounds of this school, and saw the boys running about playing a game which resembled the American game of "Black

Man," the invaluable work being done by this school was easily realized. Older boys were playing tennis, and playing the game well, with a soldier playing with them.

On questioning the teacher who was acting as guide, he informed the questioner that the soldier was a boy who was in the school when he was quite young, and when he grew older, had gone to Keio University finishing there and was now doing his military service.

"He is a fine boy, now," said Mr. Shinozaki, with pride in his voice. And indeed he had cause to be proud, for in addition to this boy, eighty per cent of the boys who have been in the school have turned out much better and stronger morally than they were when they entered.

"Mr. Tomeoka believes in feeding the boys well, in giving them plenty of sleep, and in having plenty of congenial work for them to do," said Mr. Shinozaki.

#### **Boys Taught Farming**

With this creed, Mr. Tomeoka has established a farm in Hokkaido where the older boys are sent to learn farming. His experience has taught him that children brought up in the city are not strong enough to stand farm life at first, and they must have leisure and training at his school before being sent out to the country. Numerous tenants are engaged in farming the huge tract of land and only

a few acres, perhaps 120 are farmed by the twenty boys who are at present there. They are in charge of a number of men experienced both in farming and in handling boys.

In the school here in Sugame, there are about 8,600 taubo of land, which has a large playground, a tennis Court, and several houses on it. The cottage system of housing is followed, there being three cottages besides the houses of the teachers. In each is a master and matron who give the boys the best of care. Mr Oshio the Vice-President of the School, as well as Mr Tomeoka and Mr Shinoraki, was in America for a long time studying the best methods offered over there for the care of delinquent children. Mr Oshio is a friend of the editor of the Survey Magazine, the Social Service Magazine of America and has contributed to it.

In addition to three teachers who give lessons in regular work, there are two teachers of industrial subjects. Carpentry and laundry are taught to the boys who show a predilection for manual labor. Others who can qualify enter Keio or some other university when they are old enough and take up a profession. The individuality of the child is conformed to fit him for the work for which he is most capable.

#### IMPORTANCE OF PLAY

Kite flying and other good wholesome outdoor sports have been almost killed by the rapid industrialization of the city, and the city child now has very few places in which to play. Mr Shinoraki says that the playground is just as necessary here as it is in America. The large amount of space devoted to this purpose in the Kato Gakko proves that they so regard it here.

To the visitor watching the boys play, they did not look as if they were such bad characters, and on being questioned as to the crimes of which they were guilty, Mr Shinoraki said that nine out of ten of the boys had come under Police jurisdiction because of petty thieving. Such little boys were there, boys who seemed hardly old enough to be running around by themselves, yet they were in a reform school for stealing. Some were there because they were disobedient to their parents, and some because they were cruel. Mr Shinoraki says that the predominating cause for juvenile delinquency is the bad influence of the motion picture shows. He deprecated their irredemptive effect on the character of these young boys who have no other form of amusement which is wholesome and good.

In all Japan there are about fifty reform schools only one of which is for girls. It is located near Yokohama. They have all started within the twenty year period during which Mr Tomeoka's school has grown and done good work. Of the more than three hundred boys who have passed through the school, many often come back to visit

the place where they received their first help toward a right life.

In Tokyo Fu there are four reforms considered in every case, and the effort is schools, two being private schools, one a city institution and one kept up by the public. It is at Ogasawara Island and only the worst boys are sent from Mr Tomeoka's school to that one to have a new trial there.

Other relief institutions in Tokyo Fu, engaged in general work, are four in number. There are three charity organizations, two organizations for the study of charity problems, eleven schools for the education of poor boys, eight orphanages, eleven day nurseries, five schools for the blind, two for the deaf and dumb, and several others of various kinds. All of these institutions which have to do with the care of delinquent children were started after Mr Tomeoka's school, he being the pioneer in the work. This summer he is sending a graduate of the Imperial University to America to a school in order to learn the latest methods in caring for delinquent children.

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#### Industrial Laboratory at Coonoor

The Madras Government have approved the proposal to start an Industrial Laboratory at Coonoor.

The Honorary Superintendent (Sir F. Nicholson), Government Fisheries, Coonoor, wrote to the Director of Industries, Madras, dated the 25th April 1919, as follows:—

I have the honour to make the following suggestions regarding my proposal to employ at Coonoor a young chemist in examining certain minor industries and industrial problems. My proposals for a fruit preserving factory will follow later, the present letter deals solely with the proposed work for a chemical assistant.

2. The minor industries include the manufacture of (a) vinegar, (b) inks, (c) adhesives, (d) certain special toilet soaps and the mode of putting them up, (e) the extraction of certain volatile oils and essences.

3. I think you will agree with me that the goods mentioned are desirable products in this Presidency. We have some 45 millions of people without an ink factory, dependent on outside supplies (I have just met with Japanese ink in 'penny' bottles, sold in the Coonoor bazaar at 3 annas), provided with few adhesives and only at exorbitant prices (e.g., Rs 1-4-0 per small bottle of office gum) or of poor quality, vinegar is much in demand and should not, being a very cheap product,

have to bear the relatively enormous cost of transport from England, while toddy or other country vinegar is ordinarily neither good nor cheap nor palatable. As regards toilet soap preparations, I propose to obtain toilet bases from the Calicut Factory and experiment in working them up on recipes known to me or with certain experimental additions and methods. Any success will of course be communicated to you for the soap factory. It also seems to me worthwhile to attempt the extraction of essential oils, etc., from various odoriferous plants not yet worked and which grow or will grow profusely and rapidly in this neighbourhood, methods and apparatus moreover can be varied, instead of depending solely on the ordinary still. There are other matters for experiment which for years I have had in view, but without chance of attempting them.

4 The minor industrial problems relating mainly to the cannery difficulties which require leisurely and instructed handling before introduction at the cannery—there are several problems, essential to perfection in canning which I have not succeeded in solving, and for which no guidance is found in books—these have to do with oils, lacquers, cements, etc.

5 Colonel Cornwall has kindly promised me, at all events temporarily and on certain conditions to which I have acceded, the use of a vacant laboratory at the Pasteur Institute, and will permit me to put up a temporary shed for coarse work and processes, such as the preparation of new materials for inks and adhesives, etc. This will get rid, for the present, of the laboratory difficulty mentioned to you in person, viz., that of building accommodation whether in my own compound or elsewhere.

6 With this laboratory I can begin work at once without further loss of time. I shall have to order special apparatus from home but can probably borrow or buy out here enough to begin with. If therefore Government will

(1) Sanction a young chemical assistant with a laboratory attendant on about Rs 30 and a clerk-accountant on the same pay, and two lascars, and

(2) Rs 6 000 for (a) capital expenditure on laboratory and plant, and (b) on working expenses for the purchase of raw material including containers for inks, adhesives, etc., I can

begin at once. I do not need any personal allowance since Government have recently granted me, as Honorary Superintendent of Fisheries, a travelling allowance which amply suffices for all personal needs, on the cessation of this allowance when I quit fisheries about August, I can again address you, if necessary, on this point.

7 The proceeds, if any, of sales of finished goods will of course be paid into the Government treasury, and be set off against expenditure. I do not see why, after six months experimental and initiatory work, we should not obtain considerable returns, if not profits.

8 The individual to be appointed as chemical assistant should be appointed by you, the laboratory attendant, clerk, and peon I may whole appoint locally as temporary hands. The work should be under the supervision of yourself as the Director of Industries to whom I am ready to be responsible. The Rs 6,000 may be placed at my disposal as a lump sum, so that I can draw on it as needed without incessant references to you, the usual account being kept.

The following Government Order—No 1243, Revenue (Special), dated 24th June—1919, has been passed—

The Government approve the proposal to start an Industrial Laboratory at Coonoor and sanction for a period of one year, the following staff for the Laboratory—

(1) one chemical assistant on a pay not exceeding Rs 150 per mensem

(2) one laboratory attendant on Rs 20 per mensem,

(3) one clerk-accountant on Rs 30 per mensem, and

(4) two lascars on Rs 10 per mensem

The establishment will be eligible for war allowances in accordance with paragraph 2 of G O No 16, Financial, dated 7th January 1919. The lascars will be paid from contingencies.

2 A sum of Rs. 6,000 will be placed at the disposal of Sir Frederick Nicholson for capital expenditure on laboratory and plant and on working expenses for the purchase of raw material, subject to the condition that the usual accounts are kept.

## NEWS AND NOTES.

THE Indian Industrial Conference Office announces that Mr Ambalal Sarabhai, its Honorary Joint Secretary, has contributed Rs 1,000 towards the funds of this conference

The Jute business has commenced in the jute producing districts in Eastern Bengal. In the principal jute marts in Noakhali the average price is Rs 16 per maund. It is believed that the price will rise further

Mr N B Saklatwala, of Messrs Tata, Sons and Company, has consented to act as adviser to the Indian Munitions Board for the disposal of textile materials surplus to war requirements. The necessary arrangements are under discussion with Mr Saklatwala and will shortly be announced

In succession to Signor Mari, the Italian silk expert, who resigned his service in Mysore State sometime ago, the Government of Mysore have engaged for three years a Japanese expert, named Yane Muru to undertake scientific research in sericulture and to develop the silk industry in the State.

We understand that the dividend paid for the last year by the Krishna Jute and Cotton Mills Co., Ltd., Ellore, was Rs 80 per cent and not 75 per cent as stated in the article on "Industrial Situation in South India" which appeared on page 7 of our July number. We are obliged to the Secretary and Treasurer of this Company for this information

The Japanese are establishing commercial houses in South India. They have already opened business houses in British Cochin and have now come to Travancore, writes a Travancore correspondent. Japanese gentlemen of the Japan Cotton Trading Coy have come to Quilon with the object of opening negotiations for the purchase of the Darragh Spinning Mills.

A Simla message says that intimation has been received that the prohibition issued by the Government of Canada, against the landing of skilled and unskilled labourers at ports of entry in British Columbia has been renewed

from the 9th June. The Governor-General-in-Council accordingly requests the local Governments to make this intimation as widely known as possible

The Burma Oil dividend is 30 per cent for the year on the ordinary share capital, equal to 45 per cent on the capital previous to the distribution of the bonus shares last year when 32½ per cent was paid. £186,000 is put to the general reserve and the carry forward of £1,776,000 includes an estimate for the excess profit of £1,580,000, calculated at the rate of 80 per cent.

A press *communiqué* says the Government of India have arranged that a small instructional class will be held, as last year, for officials deputed by the Indian States for training in the methods of collecting and compiling agricultural statistics, especially those relating to crop forecasts. The class will be held in the Department of Statistics at Council House Street, Calcutta, for a period of four weeks commencing from November 3, 1919

The Bombay Chamber of Commerce approve the proposal to hold a conference of the Chambers of Commerce in January 1920 and express an opinion that the first meeting should be limited to European Chambers of Commerce including the Ceylon Chamber. They add that the question of inviting the leading Indian Chambers to send delegates might form one of the items for discussion on the first agenda paper

The Cawnpore Branch of the Tata Industrial Bank, was opened on 1st August, by Mr N C Stiffe, I C S, Collector. It is understood that the local directors will include the Hon. Mr T Smith, (Managing Director, Muir Mills), the Raja of Mahmudabad and Lala Kamalpat, a prominent Marwar merchant. Mr B. L. Gray is the manager of this branch. Branches will also shortly be opened in Lucknow and Allahabad

The Bombay Millowners Association in their representation to the Government have drawn special attention to the low amount

allowed for the depreciation of the machinery rate which has remained at 5 per cent during the past 20 years. In view of the trebling of the price of Machinery since 1914 the Association hopes that Government will fix allowances for the depreciation on the basis of the existing prices when calculating the excess profit

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Mr Kashichi Shimizu, of Shokosha, Ltd., of Tokio, special agent for the "Commercial and Industrial Directory of Asia," published at Tokio, is now in Bombay collecting information for the Indian section of the 6th Edition of the Directory, which is to be greatly enlarged and improved. Merchants and others interested in business with the Straits, Japan and the Far East generally should address Mr Shimizu c/o the Japanese Consulate, Bombay

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The trade returns for June, 1919, published by the Department of Statistics, India, show the imports amounted to £7,893,000, a decrease of £1,740,090 and exports (including re-exports) to £13,622,000, an increase of £60,000, as compared with the corresponding months of 1918. There was a large decrease in the exports of food, drink, and tobacco (mainly food grains) amounting to £2,399,000 and articles wholly or mainly manufactured decreased by £357,000 but raw materials and articles mainly unmanufactured increased by £2,490,000. During June of the pre-war year, 1914, the imports amounted to £8,455,000 and the exports to £14,555,000

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The *Travancore Government Gazette* of the 22nd July contains the following notice — It is hereby notified for general information that in pursuance of Government Order No E 2041-b of 18, dated the 4th June, 1919, in Agricultural class, consisting of 8 pupils, will be started at Nedumangad from the 1st Ohngom, 1095, in which a full course of instruction in Bee-Culture will be given with a view to its introduction as a home industry. An award of a grant of Rs 12 for the purchase of a complete set of apparatus will be made by Government to each pupil who comes out successful at the end of the course

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The number of palm trees which are usually tapped for palm sugar in the Madras Presidency

is estimated by the Department of Agriculture at 2,500,000, and the yield of jaggery (crude sugar) therefrom at 35,000 tons (of 2,240 lb). The total palm-sugar production of India, writes the United States Consul at Madras, is stated to be about 300,000 tons, of which Bengal produces about 100,000 tons, valued at £480,000. India's total production of sugar, both from cane and palms, is somewhere about 3,000,000 tons per annum. The area under sugar cane in Madras is less than 1 per cent of the total area in British India, the United Provinces being the great producing area

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One of the noteworthy consequences of the war, according to *Mettall und Erzs*, is the great increase in the output of wolfram. Before the war the whole world-production did not exceed 10,000 tons annually. The present output is at least double that quantity. An approximate estimate gives Portugal, Spain, France, and Great Britain, 2,500 to 2,800 tons, North America, 6,000 tons, South America, 3,000 to 3,500 tons, India, Siam, the Malay States, and Australia, 5,500 to 6,000 tons, China and Japan, with Indo-China, 800 to 1,200 tons. The stimulus has been high prices, so that a drop in market value would close some of the mines. Russia certainly possesses deposits of wolfram. South America, Spain, and some other countries favourable to Germany may be expected to ship to her wolfram ore at prices considerably below the present abnormally high level

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The communique from Simla, announcing that the Government of India had no intention of relaxing their present measure of control over the export of Burma rice before the next crop comes to market was, according to advices from Rangoon, received with consternation in the local Rice market, and this, coupled with a strong rumour to the effect that Government within the next fortnight are going to commandeer at control rates all paddy and rice stocks, has caused almost a panic, so that stockholders who hitherto have been demanding Rs. 600 to Rs 1,000 above control rates per 100 tons have now reduced their terms to Rs 300 bonus, but even this has failed to produce buyers. The greatest consternation is said to be felt by those who have large stocks of both paddy and rice but are



not among the licensed shippers. It is stated that the stock in Rangoon alone is equivalent to 600,000 bags of rice.

Messrs Tata, Sons, Limited, state that it has come to their knowledge that applications are being canvassed for subscriptions to the capital of all sorts of new joint stock companies supposed to be projected by their firm in connection with the Tata Iron and Steel Company and the Tata Industrial Bank. The firm state that so far as they are aware no companies, except the two companies mentioned below, are in contemplation and they strongly deprecate the circulation of such false information to the public. The joint stock companies above referred to are the Nilla Mulla Power Company, (the prospectus of which will be shortly issued when a license from Government is obtained), and the Koyua Valley Power Supply Company, the formation of which cannot in any case take place before the end of next year. As regards the latter Company only the Hydro-Electric portion will be taken by Tata, Sons Limited, and the manufacture of aluminum and other products will be taken up by other allied companies.

The Burma Chamber of Commerce, writing to the Local Government on the representation of commerce in the Legislative Council on the proposed Craddock scheme, point out that only two persons out of one hundred are uneducated in comparison with the much higher percentages in Bombay, Madras and Bengal. They ask for six seats in all, three to be elected and three nominated. In the course of the letter, objection is taken to the electorate for Anglo-Indian and Europeans which they assert will prove satisfactory to neither party. They do not regard as serious a suggestion by the Local Government that some of the so offered seats might be filled by the representatives of commerce and consider that reliance on the nomination of non-officials is too speculative. As commerce would have no say in the actual appointments in view of the Southborough Report, they consider the proposal of two representatives of commerce altogether inadequate. They appeal to the Lieutenant-Governor to recognise this by increasing the commercial representation (including the Trades Association) to six.

The Madras Government has issued a press *communiqué* on the measures taken to relieve distress in the affected areas of this Presidency. The *communiqué* states that famine relief operations were found necessary in the Ganjam and Krishna Districts. In Ganjam there was a serious famine covering an area about a thousand square miles. Nearly ninety thousand persons were receiving gratuitous relief on the 28th June. The expenditure on famine relief which was over half a lakh in February and March, rose to Rs 93,883 in April, in May to five lakhs, in June to over five lakhs and in July to six and a half lakhs. The original provision in the Budget for 1919-20 was one lakh. When the nature and extent of the operations in Ganjam became evident this provision was increased to two lakhs. In May, 1919, it was again increased to five lakhs. A further increase to fifteen lakhs was found necessary, and the Government are now considering the necessity for increasing the Budget provision to 35 lakhs. The rainfall due to the south-west monsoon has hitherto been satisfactory so far Ganjam is concerned, and it is hoped that if the rains continue to be normal famine operations will be unnecessary after October.

The following letter from the Director of Industries, Pongal, has been circulated among the various firms in Calcutta likely to be interested in the project. —It is proposed to hold a British Industries Fair under the auspices of the Board of Trade, London, in the spring of 1920. The fair will be held at three different centres, London, Glasgow and Birmingham. It will be open to all manufacturers and traders within the British Empire. The Exhibition is essentially a Trades Fair, and only members of trades will be admitted to it. It will not be open to the general public. The people who will attend, therefore, will be those interested and those who wish to place orders. It has been considered that this will present an excellent opportunity for traders in this country to bring their articles before the British dealers, and for this reason every assistance will be given to manufacturers and merchants in this country who wish to exhibit their wares at this Exhibition. Full particulars can be



obtained on application to the Director of Industries, Bengal. According to the rules of the Fair any manufacturer or merchant within the British Empire is at liberty to apply for a stall on payment of certain fees, but it has been proposed by the Indian Munitions Board that a stall for the Exhibition of Indian Village Industries products might be run. The arrangement for exhibits of Bengal products in this stall will be made by the Director of Industries, Bengal.

A slight departure from the usual run of Indian enterprises comes in the form of Fertilisers, Limited. The company has secured from the lessors, Messrs A B Dungenan, Ltd, the lease of the property at Budge-Budge known as the Calcutta Bone Mills, for a period of three years, from April 1919 to April 1922, with the option of purchase at the end of that period, also the benefits of the contract with Messrs H Hollingshurst, Ltd, the well known phosphate people for the supply of the entire production of the mill. The lease comprises the mill buildings, fully equipped with machinery and bone crushing plant, also a railway siding and use of the canal bordering the property. All the output for the next three years has been sold to Messrs H Hollingshurst, Ltd, in terms of the above contract, at profitable rates. The capacity of the plant is 40 tons per day, which will assure the shareholders of a good prospect generally. The lessors receive rupees one lakh in shares by way of consideration for

the lease and nothing in cash leaving two lakhs of the total capital of three lakhs for issue to the public in 20,000 shares of Rs 10 each, which have already been subscribed. The working capital will be devoted to the purchase of raw products throughout India for manufacture. The Company has the advantage of taking over a going concern. The first Directors of the Company are Messrs A E Mitchell, A B Dungenan and R P Starling.

Messrs Haji Mahomed Haji Ismail & Co who own the Elphinstone Mills, situated opposite the Elphinstone Road Station, Bombay, have turned it into a joint stock company with a capital of fifty lakhs of rupees divided into 25,000 ordinary shares of Rs 10 each and 25,000 preference shares of Rs 100 each. All the preference shares and five lakhs worth of ordinary shares have been taken up by the previous owners of the company and the rest of the shares have been oversubscribed and the allotment work has been completed. The Managing Agents are Messrs Haji Mahomed Haji Ismail & Co, consisting of Mr Haji Yusuf Haji Ismail, Umar Sobani and Oosman Sobani. The board of directors consists of Haji Yusuf Haji Ismail, Esq, (Chairman), Messrs A J Raymond, Ambalal Sarabhai, Manu Subedar, Husein A Lalji Tricundas, S F Mulla and Umar Sobani. The offices of the company are situated at 375, Hornby Road.

## TRADE ENQUIRIES.

THE following trade enquiries have been received by the Director-General of Commercial Intelligence. Replies should be sent to the Publisher "Commerce and Industries", 5, Mount Road, Post Box 353, Madras, who will arrange to collect any information required.

### **Gunnies and Hessians**

(1-101) - A firm in Lucknow (United Provinces) wishes to be put in touch with manufacturers of gunnies and hessians desiring to have representatives in Northern India.

### **Palmyra Jaggery.**

(1-102) - A firm in Coacanada (Madras

Presidency) wishes to be put in touch with buyers of Palmyra Jaggery.

### **Valerian Root, Soap Nut Shells and Chiretta.**

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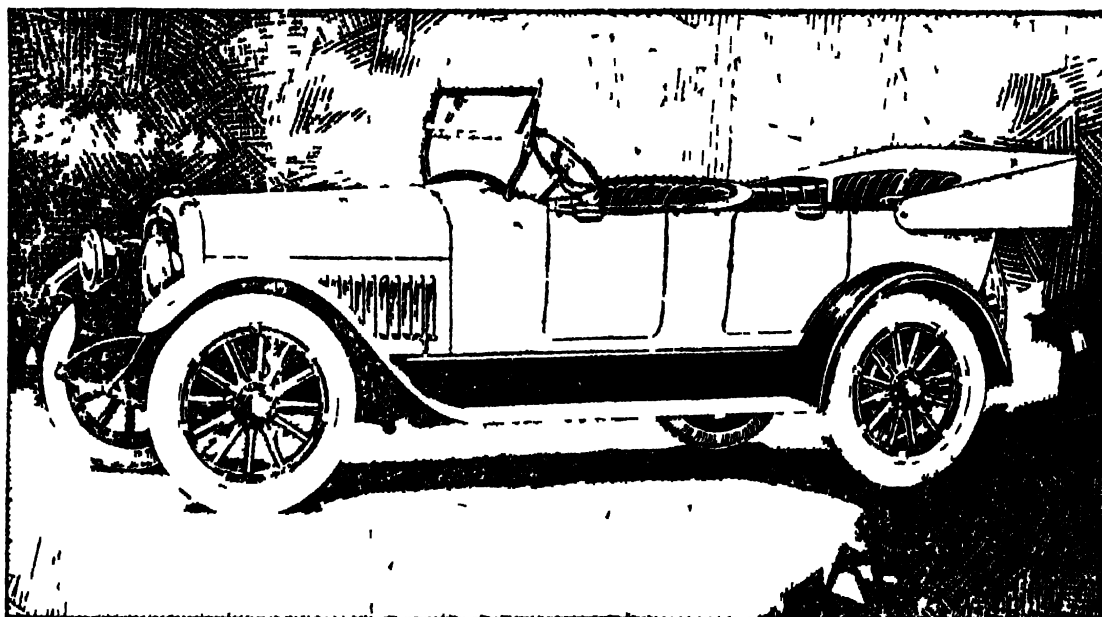
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# "COMMERCE & INDUSTRIES"

Vol. I.

OCTOBER 1919

No. IV.

## COMMENTS OF THE MONTH.

**T**HE month abroad was not characterised by any event of a striking character from a political or military point of view, except it be the altered outlook in the Russian situation, but there were many minor events of sufficient importance to be recorded in these pages. In Britain, the outstanding question early in the month was the effect of the relaxation of import restrictions which permitted German as well as other goods relating to many an industry to be imported into it. The relaxation was due in most part to the clamour of the consuming public, led by the Liberal and the Labour Press at the increasing cost of living owing to the restrictions on imports which they alleged were intended to benefit the British Capitalist—producers. It made the British Industrialists nervous and they set up the cry that the Government's action would ruin them. Many an infant industry of a great variety, believing that the Government would continue to support them, had sprung into existence, and the withdrawal of the protection vouchsafed to them in war-time, when their growth was encouraged, constituted, in their opinion, a barefaced betrayal of their interests by Government. *The Times* espoused the cause of these industries and devotes great attention to this question. Sir Auckland Geddes recently took great pains to explain that the Government's fiscal policy would have no serious depressing effect on newly established British industries. Should, however, there be any serious adverse effect on them, Government, he said, would at once take steps to remedy them.

Sir Auckland seized the opportunity to point out that the fears of cut-throat competition entertained of America, Germany and Japan were absolutely groundless. Germany had been stricken down too hard and too low to raise her head again for another generation. Her wherewithal to purchase raw materials and equip new machinery was insignificant, and what there was of it practically stood pledged to redeem her huge debt to the Allies. With her man power crippled and her productive capacity impaired by the colossal sums her industries would have to pay by way of war and after war taxation, she would, he said, be too absolutely helpless to be able to beat down her competitors by resort to her peace time trick of peaceful penetration. What applies to Germany applies to other European countries as well, only it applies with great emphasis as we have pointed out before, for, while Germany escaped the consequences of a foreign military occupation, France and some other European countries suffered terribly from them.

Sir Auckland's assurance about the position of British industries should not, however, be taken to mean that the economic position of Britain is as satisfactory as we might wish it to be. London, as the financial hub of the world, has suffered a great blow on account of the war. Before the war, Britain's excess of imports over exports amounted to, we believe, something about a hundred and fifty millions sterling, but this did not lead to any undesirable drain on her, for, she had to her credit, as a set off against this, her income from shipping

## EDITORIALS.

### The Administration of Baroda.

**T**HE Report on the administration of Baroda for 1917-18, a copy of which we have been favoured with, is, we note, a record of steady, though, for the present, necessarily slow progress. Now that the war is over however, we may take it that the great programme of development work which, among other things, His Highness is known to have before himself involving great improvement in railway extensions, harbour convenience, the generation and utilisation of electric power and industrial activity—will be taken up as a systematic working plan. For the present, however, we have to rest content with a brief account of the directions in which the year under review has witnessed developments in the various spheres of the States economic activity.

#### AGRICULTURAL IMPROVEMENT

In Baroda, as in India generally, the main activity of the people is agriculture. The State is helping this activity in numerous ways. It maintains a relatively large expert staff at a recurring cost of about Rs. 60,000 annually together with four model farms under the management of the Department. In the demonstration area of these farms, different dry and irrigated crops are grown and the best methods of tillage and crop treatment are demonstrated to the visiting cultivators. Seed selection, manual trials, varietal trials and other work known to up-to-date experimental farms are also conducted there. One noteworthy fact in regard to one of these farms is that it was able to dispense with one oil-engine which it used, along with two bullocks, for irrigation work. By a rearrangement of field work, the farm was able to utilise the bullock to turn out the whole irrigation work which saved the farm over Rs. 700 by way of irrigation expense. We are glad to note that "the exact conditions under which the use of an oil-engine on a farm would prove profitable on the whole has been taken up for detailed study." The result of the year's working was that instead of an annual loss of Rs. 1,000, the farm referred to showed a profit of Rs. 200.

One point which is most prominent in regard to the work of the Agricultural Department in Baroda is that there the educative work appears to be far better arranged for than in other parts of the country. There are in the State four graduate agricultural inspectors, one for each district, and their visit in the year to 143 villages demonstrating to the cultivators the use of improved implements and lecturing on agricultural improvements and on the advantages of co-operation is bound to bear rich fruit in due time. The State did more. It appointed a temporary *Khedut* (fieldman) for pushing on the cultivation of irrigated crops in certain villages. "Through this man," we are told, "the department has succeeded in planting in these villages over 30,000 plantain trees, 700 of guavas, 160 of mangoes and 100 cocoanut palms and in introducing the cultivation of some country vegetables."

From this fact, the department drew its lesson. "Under proper guidance, an intelligent and trained cultivator serves as the best medium for introducing improvements." The lesson is not lost upon it for, we note that, finding that the interest of the cultivators in sugar-cane cultivation has been kindled, it has already proposed to employ two trained sugar-cane fieldmen in areas under cane cultivation. The wisdom of employing such men will be better realised if it is known that the agricultural school had to be closed for paucity of students. Since Muhammed refused to go to the mountain, the Durbar determined that the mountain should go to him, and they are rewarded. As a result of district propaganda, the cultivation of groundnut, ginger, turmeric, cane, tobacco, hemp, pepper, *jiru*, etc., in the Amreli district and of ginger, garlic and sugarcane in the Kadi district was further extended.

#### INDUSTRIAL DEVELOPMENT.

What with the uncertainties consequent on the war, it is unreasonable to expect anything remarkable by way of industrial development in the year under report. But the endeavours of the Durbar in this direction must be

recorded as showing the prospects of an industrial revival in the near future. We note a Committee has been appointed to enquire into the economic condition of the people and report on the measures to be adopted for further development of the resources of the State. For the rest, we are told "The question of the manufacture of woollen goods, the investigation of our forest resources and wood distillation and similar industrial problems have been taken up for enquiry. The year continued to be favourable for the existing industries which worked generally with profit. Some of the factories that have not been hitherto working or have been in liquidation were in the process of re-organisation." Development of sugar factories, tile works, fisheries and mines also received attention and is progressing. Government financed infant industries to the extent of Rs. 2,55,000 and they also contemplate removing by legislation of 10 tons octroi duties levied by local bodies which impede the growth of industries by reserving the right of levying such duties to themselves and compensating these bodies in special cases. We congratulate the Durbar on their far-sighted policy and hope that they will ere long be able to show even more substantial results than they have shown in the past.

### The Industrial Boom

The Industrial boom in India continues, if anything, with increased strength. A hundred and thirteen floatations were registered in September last with an aggregate authorised capital of Rs. 48,98,34,000 as against only twenty companies with an authorised capital of Rs. 88,10,000 in the same period last year. We have pointed out more than once the dangers of rushing head-long into ill-considered ventures.

It is, however, easy to exaggerate the dangers that the Indian industrial movement is now subject to, especially in view of the fact that in the pre-war past there was little or no industrial activity comparable at all to that which we are now witnessing. Circumstances have now considerably altered. We have had to import capital in the past and we depended unreservedly on the London money market for

all our development programme such as the construction of railways and the cutting open of canals. To raise more than five crores or so on the best of securities—those of Government—was considered impossible in India even in the most prosperous of pre-war years. In war-time we have raised, not five crores annually, but fifty crores or thereabouts in the country itself.

And no wonder. The profits of our staple industries were more than sufficient for the purpose. Our jute industry in war-time fetched, we believe, about £50,000,000 odd by way of profits. Its earning capacity is not less now, the current jute profits approximating to about £10,000,000 or thereabouts per annum. Glentworth's monopoly is still unshaken and she is able to make the most of her position. The state of our cotton industry is equally cheering. At any rate, in war-time, it had its share of general industrial prosperity. Mr. J. A. Wadia calculates that the profits of this industry totalled 8 crores last year which is a substantial improvement on those of the previous year. Mill owners doubtless complain of the rise in exchange affecting their position, but, whatever the effect of this may be two circumstances, at any rate, are in their favour—the handicap on Manchester by way of increased manufacturing cost due to rise in wages and the anti-Japanese campaign in China which eliminates Japanese competition against us in Chinese markets. These factors apart—indeed they do not matter much so far as our point is to explain the industrial boom as partly due to abundance of capital—our cotton industry has in the last four years made very handsome profits. And they look forward confidently to an even more prosperous period, counting on certain favourable circumstances.

The case of our other staple industries was, generally speaking, no less satisfactory. The leather industry—including in that term all industrial activities based on hides and skins and our tanneries which sprung in large numbers in all parts of the country stimulated by the war-time demand—the tea industry, and our other industries connected with oil-seeds and similar economic products—all these had a good time. We must not forget to mention the case of our iron and steel industry which, led by Messrs. Tata, had a glorious period, nor



## THE CASHEW TREE

By Mr. M. M. Peria.

The Cashew, as its Malayalam name implies, is an exotic tree originally introduced by the Portuguese. It was imported from South America, and seems to affect an insular climate in the land of its adoption. It grows extensively in the maritime districts of India and Burma, where it thrives on the sea coast and dwindles away towards the interior. It is particularly evident on the West Coast, and is a member of the minor botanical family to which the mango belongs. Semi-wild by nature, it grows on any soil in a tropical climate with mother earth as its only nurse, but is by no means hardy or long lived. Indeed a cashew plantation needs to be constantly renewed in order to have its outturn and appearance maintained.

The commercial value of the tree consists in the kidney-shaped nut which its fruit carries at the lower end of it. The fruit itself finds no remunerative sale in the market, and has gone to waste season after season ever since the Abkinnia law was enacted. The villager in South Kanara used to distil from the ripe fruit a spirit which possessed valuable diuretic properties and which was administered with marvellous results in the advanced stages of cholera. If the native of the West Coast has resented a penal legislation, it is the Act that has deprived him of a home distilled liquor by which he is still prepared to swear. The cashew fruit is juicy, and resembles the pear in colour and shape, but lacks its luscious taste. It is none the less wholesome, and, if one may not live long on a cashew as on the apple, one may yet live healthy.

The roasted kernels of the cashew nuts were largely exported to Europe and America in the years that immediately preceded the war. As many as three firms were engaged in the trade in Mangalore alone, the principal seat of the industry on the West Coast, and handled in a season nearly 2,000 tons of the product. The kernels were cured by the exporters concerned before they were shipped to the foreign market. The local demand has always been too insignificant to sustain the trade. The kernels were dried in the sun, peeled and garbled before

they were packed in dealwood boxes lined with cardboard. For a journey across the Atlantic, the cases were lined with tin. The great conflict of nations, which dislocated industries and paralysed trade, dealt the young cashew trade a knock-out blow, from the effects of which it has not yet recovered. The cashew industry as stated above, depended entirely upon foreign demand, and, when that failed, it died but a natural death. The edible nut, has, however, earned for itself a firm place in the affections of the grocer and confectioner, as will be explained below, and it is certain that the demand for it will be restored on the return of normal conditions to the export and import market. The short-lived impetus, which the trade received before the war, led, it may be mentioned, to the multiplication of plantations, the produce of which has since been disposed of in the local market at by no means profitable rates. Land suitable for cashew cultivation is still available in square miles and it behoves its owner to plant it with a tree which needs no great initial outlay and the returns of which are certain.

As regards the commercial value of the nuts, the earliest use of them was the preparation of an essence with which the Madona wine was flavoured. Modern science and the inventive faculty of the present-day confectioner have found for it many a new use. In short the nut has usurped the place of almonds and like costlier ingredients in cake and pastry. The oil expressed from the kernels is clarified and disguised to pass for salad oil and the residue or oil cake left is used to enrich confectionery. The kernels which have a bland pleasant taste are not without dietetic value, but are decidedly inferior to walnuts for instance which they resemble in taste.

The pericarp of the nuts also contain a heavy acid oil, the medicinal value of which remains to be discovered. It is at present used as a lubricant and also as a vesicant. The tree besides exudes an astringent gum of a very inferior quality compared to gum arabic.

## OUR PAPER INDUSTRY.

By -Rao Sahib G N Sahasrabudhe.

I HAVE been studying for the last 20 years the problem of industrial development in India and I have been convinced that the question of industrial development must be kept in view and attempts ought to be made to advance the problem as far as possible. The Government Forest Department which was established by Lord Dalhousie, in 1856 has been working and, lately, since the establishment of the Research Institute at Dehra Dun, under the regime of Lord Curzon, the Department has been engaged in carrying out researches and conducting experiments of a varied character on raw-materials in which the Himalayas and other mountain regions in India abound. Some of the experiments have been proved successful and my object is to draw the attention of the people of the country to what is being done by the Department and to bring them in close touch with the work of the Forest Research Officers, with a view that the raw materials and sources of the country might be exploited systematically with the co-operation of the Government, and manufactures established in the country. Many forest industries could be started in India. "Paper and Paper-pulp industry" is one such.

I will deal with "paper industry" in Europe and America and review the situation briefly.

### WORLD'S PAPER DEMAND

It is unnecessary to tell what an important part the paper and paper-pulp industry is playing in the markets of the world. Demand for paper is continuously increasing so much so that the world at the present time consumes as much as 8 million tons of paper annually. The growth of paper trade since the last 80 years is remarkable and Europe which had been the largest consumer understood the situation well and naturally began to put the paper and paper-industry on a broad and substantial footing and she has succeeded in her venture. Formerly, when the demand for paper was very limited, rags, waste paper, etc., were the only leading staple of European

paper-makers. Put "necessity is the mother of invention". When rags and other materials began to fall short of the demand, naturally the paper maker began to look around for some other materials useful for him.

Then came the use of esparto, wood and other fibrous materials. The continually growing demand for paper resulted in the remarkable expansion of wood-pulp industry in Europe and wood has now been adopted as a substitute for rags, though for cheap grades of paper only.

### POSITION OF SWEDEN AND THE WEST

Sweden had developed her paper industry so enormously that she holds at present a most conspicuous position and is aptly called "the home of paper-pulp industry". The latest official statistics for 1913 reveal the same thing. According to them, 11,86,577 tons of mechanical and chemical wood-pulp valued 1260,00,000 kroners were produced, out of which 8,17,837 tons were exported to foreign countries, Great Britain being the chief consumer. The following detailed table of mills is taken from the Swedish Board of Trade publications.

	Mills No of Men	
(1) Wood-pulp mills combined with pulp-board factories	13	700
(2) Wood-pulp mill only	114	11,185
(3) Wood-pulp mills combined with paper factories	30	7,500
(4) Wood-pulp mills combined with straw-board factories and paper mills	11	3,205

Out of these, 13 mills manufacture mechanical pulp only. From the above, we shall have a good idea as to the enormous trade carried on by Sweden in paper-pulp industry, and I have especially alluded to it as I want to bring home to the mind of the public what a country endowed with natural resources can

do, if it wills for its own welfare. Practically speaking, Europe, and America have advanced the paper industry to its present state as will be quite clear from the fact that these countries together supply nearly 80 per cent of the world's paper demand.

It is now an admitted fact that Europe and America have steadily placed the paper-pulp industry on a sound footing. The advanced scientific knowledge, and other favourable circumstances, as the result of better economic position, have largely contributed to its marvelously rapid growth. Sweden and Norway, which have enormous forests of pulp wood, are the centres of the trade, while Germany, Austria, Russia in Europe and Southern and Western States in America, and the Dominion of Canada—all these have developed the pulp-industry as far as their forests would permit.

#### THE THEORY OF EXHAUSTION

Yet it must be borne in mind that the "success" signalizes danger ahead, because a fear is rightly entertained that the present drain on forests would, after some years, result in the exhaustion of the resources. Here, I cannot but refer to the weighty remarks of a well-known expert. He says "I have, I may say, travelled a great deal in the pulp producing countries, particularly, Sweden, Norway, Finland, United States, Canada, visiting the most up-to-date mills where all classes of wood pulp are made and I have had excellent opportunities of studying and comparing the various processes now in use in Sweden and Norway from which we have for years derived our principal supply of wood-pulp for paper. Years of practical experience have taught the Scandinavians to produce the best wood-pulp in both varieties. But to me, it seems, however, that at the rate at which the forests are being denuded of their timber, for other purposes besides the conversion into wood-pulp, in less than 25 years the maintenance of the timber would become a grave problem." Another writer speaks of this danger in a similar strain. He says "No doubt in Canada and the remoter regions of Northern Europe and Siberia, there are still vast timber areas as practically

untapped, but the Government of these countries, warned by what has occurred in the United States, are fully alive to the dangers of permitting wholesale clearances and are introducing checks and restrictions which in conjunction with the greater distances of these areas from the centres of consumption must have, and already has had, a serious effect upon the expansion of the industry. No better proof of this can be had than in the fact that the continuously downward trend of prices, of both paper and paper-pulp, reached its bottom limit about five years ago and while it is probable that, for many years to come, wood pulp will hold its place as the leading staple, yet it is now recognized that it will be unable to overtake the continuous growth of consumption, and to provide for this, a new source of supply must be found.

From these remarks, it is quite clear that although both Europe and America are doing their level best to develop paper-pulp and paper trade to the fullest possible extent, yet there shall be limit to this development beyond which they need never aspire to go because of the limited supply of materials at their disposal.

#### PAPER SUPPLY AND EDUCATION

The world of to-day is hypnotized by education and its "Ideals." Education has rightly been held as one of the highest ideals that a nation ought to keep before it and this ideal is attained through religion, philosophy, literature, science, etc., which are already making vast and fast strides with the spread of education, with diffusion of literature, philosophy, science, etc., the demand for paper would be on the increase and increase for ever and it is quite probable that the demand would be, some day, so enormous that Europe and America with the limited supply of raw materials at their disposal, would find it well nigh difficult to cope with it.

Scarcity of paper mean indirectly a check on the spread of education. If we look at the problem from this view point we at once begin to realize the importance of paper and paper-pulp industry in the markets of the world, and how with the enormous supply of raw materials that we have at our disposal could we perchance take the top in this branch of trade.

**PULP AND PAPER CONSUMPTION OF THE WORLD.**  
Mr. G. B. Snellam of Helsingfors has tabulated the World's Annual Consumption of Paper and Pulp as follows —

Cellulose Pulp	Mechanical Pulp	Paper	Card Board
Tons	Tons	Tons	Tons
Belgium -	31 500	1 000	132 850
Germany	571 281	679 530	1350 720
Great Britain			866 160
Finland	66 107	116 686	94 743
France	52 300	61 200	604 981
Japan	12 000	15 000	98 000
Italy	6 500	50 250	231 670
Canada	208 300	480 400	256 900
Holland	11 509		81 250
Norway	276 030	327 050	121 100
Austria Hungary	261,512	237 279	361 915
Russia	109 000	20 350	223 250
Sweden	536 070	230 750	235 200
Switzerland	18 900	17 050	45 750
Spain	2 400	4 400	74 820
United States	1 163 164	1 255 020	2 903 702
Other Countries of Europe	10 100	8 740	48 540
Other Countries of Asia			11 000
Other Countries of America	5 400	2 000	62 300
Africa			2 5000
Australia			13 700
<b>TOTAL</b>	<b>3 343 168</b>	<b>3 531 675</b>	<b>7 846 101</b>

After having given a brief history of the paper conditions in Europe, I now turn to India

#### THE INDUSTRY IN INDIA

There is no denying the fact that very few efforts were made by us in India, to put the paper industry on a large and substantial basis, and this will be clear from the fact that we have only 8 mills working. All these mills manufacture paper side by side with paper-pulp and this is a peculiar circumstance in India. In Europe and America, these two, paper and paper-pulp manufacture, form two separate industries. The largest Paper Mill in India belongs to Titaghur Paper Mills Co., Limited, who have two mills running, one at Titaghur and the other at Kankinara, the combined outturn of these mills is over 1,500 tons of paper per annum. The next most important paper mill is at Kaneeganj with an annual outturn of 6,700 tons of paper. This mill is owned by the Bengal Paper Mill Co., Ltd. The third largest mill is situated at Lucknow with an outturn of over 2,500 tons of paper every year. In Bombay Presidency we have got two mills, one at Bombay and the other near Poona, owned by the Deccan Paper Mills Co., Limited. One more mill there is and that is at Gwalhar.

Year	Value of paper produced by Indian Mills	Value of imported paper into country
	£	£
1908	505,818	628,335
1909	527,463	666,835
1910	513,436	733,722
1911	533,632	774,128
1912	513,730	905,560

The combined outturn of Indian mills comes to about 30,000 tons of paper per annum. The imports of paper into India in 1914-15 amounted to 51,300 tons valued £879,298. Hence, the total demand for paper in India comes to nearly 80,000 tons per year, of which India supplies only about one-third. From the above table, it is quite clear that year by year we have taken a fancy, as it were, to consume paper more and more, while the paper industry in India stands practically where it was ten years ago. Though mills have increased their rate of production owing to war conditions, yet the general outlook is not hopeful. As for the imports of paper-pulp and other paper making materials, the matter stands thus

#### IMPORTS OF PAPER MATERIALS

Imports into India in 1913-14

From United Kingdom	lbs 11,233
" Austria-Hungary	lbs 21,501
" Sweden	lbs 20,636
" Germany	lbs 20,217

The above figures are sufficient to testify to our complete dependence on foreign markets. The gravity of the situation calls our earnest consideration and efforts ought to be made to improve the situation. A large proportion of chemicals is also imported into India such as soda compounds, bleaching powder, china clay, etc., which are mostly obtained from England. However, since the close of war, the situation of the paper industry is improving. Messrs Titaghur Papermills have increased their output and the mills now manufacture paper from bamboo and have erected new plant and machinery for the purpose. Messrs Turner, Morrison & Co., have seen 7 years lease of Kanara forests and will make paper from bamboos growing in the forests. The Hon. Mr. Lalubhai Samaldas of Bombay has established paper mills in Burma another and place. The success of these enterprises will be watched with interest.

## SOAP INDUSTRY IN INDIA.

By—Mr V. K. Soman.

**I**S the industry possible in India, is the question that has occurred to many. The answer must be given in the affirmative. The soap has become an article of every day use. Even the villagers cannot do without washing soap. In highly civilised countries the consumption of soap has been looked upon as the criterion of the degree of civilisation. The supply of soap was one of the problems with the Germans in the war. In European countries the soap is looked upon as one of the life necessities. The growing imports of soap into India and the (increasing number) of soap factories in India clearly prove the existence of a field for soap. This growing demand and the changed condition of the world have set many a brain to make this industry an Indian industry.

### RISE OF INDIAN FACTORIES

The Government of Madras amongst all other provincial Governments was the first to undertake the investigation of this industry departmentally and officially. The results of all this labour have proved immensely successful and the Government has started a pretty Model Factory at Calicut with up-to-date plant and machinery under an Indian expert specially trained in England. The results are most encouraging. The Government report of the factory and its working is full of promise. It is reported that the Government is going in for a still bigger plant and is thinking of making the present factory into a technical institution for oils and fats with a view to train Indian youths in the industries connected with oils and fats. The Mysore Government, as well as the Nizam's Government very lately, have opened soap factories under England-trained Indian Soap Experts with up-to-date plant. The products of these two factories are commanding very good sale and are approved by the public. All this goes to prove that the industry can be successfully conducted under expert and sound management. There are other private big companies in Bengal, Bombay, U P etc, that are doing sound and extensive business. The want for soap was not so keenly felt even during the war times, even though there were no appreciable and regular imports of foreign soaps, as the local supply met the demand.

### MARKETS AND MANUFACTURE

The Japanese soap imports increased during this time. From the figures of foreign soap imports, it can be clearly seen that there is a very vast field for Indian enterprise and capital. The consumption of soap is increasing day by day. The field is so vast for the industry that if well organized and up-to-date factories were started in every district there will never arise the question of consumption of the finished product. From all this, it can be clearly seen that there are immense possibilities for the soap industry in India, if conducted upon up-to-date and sound economic lines.

To make it a complete success the market must be regularly supplied with the best finished products of uniform quality. Then comes the question of the supply of ingredients that are required in soap manufacture. Lits, oils, alkalis, colours and perfumes are the chief articles required. It is no exaggeration to call India the land of oil-seeds. India exports oil-seeds valued at nearly 30 crores of rupees. All this export means serious economic loss to India as the seeds are exported as raw materials and not as finished products. By exporting these articles in their crude forms, we lose the by-products. Moreover, we have to import these very articles in their finished form at exorbitantly high prices. Thus, it means a double drain. Almost all oils are used in soap manufacture in varying degrees according to their respective properties.

### OUR SUPPLY OF OIL

There are certain oils as coconut, the tream, castor, mahua, etc, which are most valuable in soap manufacture. Even the supply of these oils and their seeds is available in immense quantities. There are still further unexplored sources of oil supply which deserve scientific investigation. If properly investigated, the oil industry will be revolutionised. Our present proceeds of oil extraction are crude and antiquated. There is immense scope for improvement. If properly and scientifically organised on most up-to-date lines, the oil industry of India has got immense future possibilities. When the oil industry

is so organised, the soap industry must, as a necessary consequence, take firm root in India and be a sure success. At present, there are no oil mills in India that conduct the work of the separation of fatty acids and glycerine. The supply of pure fatty acids will prove of immense help to small manufacturers working on cottage industry lines. It will save them the cost of a big plant required for the recovery of glycerine liberated in the settled boiling process of soap manufacture. Moreover, it will save an immense amount of labour and time required for such recovery and boiling. With fatty acids (pure) readily available, the whole operation of soap manufacture can be finished without boil. The resulting soaps from such fatty acids will stand competition with the best imported ones as they will never sweat in rain and will never lose in size and beauty.

#### SOME PROCESSES

To make the soap industry really an Indian industry, serious, systematic and scientific attempts must be made to organise the oil industry. There are three processes to my knowledge by which glycerine is separated from the fatty acids: one is auto-glycine, the other twitchell and the third called the enzyme. Every process has its particular advantages. To my mind, the twitchell process is the easiest as far as the glycerine and fatty acid separation is concerned. The resulting fatty acids are said to be dark in colour. But in the new process, I hear vast improvements are made. About enzyme I know not much. It is for the manufacturers to settle what would suit them best. I have simply given the outline. Apart from their use in soap, they are commercially useful in many an industry. There is only one factory at Baltimore.

#### FATS AND ALKALIES

Then comes the question of fats. The recent statistics of hide exports clearly prove that a very heavy number of cattle are slaughtered in India. The Indian methods of the recovery of fat are not as scientific, up-to-date, sound and economical as European ones. By such crude methods, a very big per cent. of available fat is lost. Moreover, the fat is not as pure as it ought to be. All

this must be improved. With better and improved methods the supply will be greatly increased. This supply will be of immense use in soap as the fats are not generally used in India for edible purposes.

#### ALKALIES

Next comes the question of the supply of alkalies which can be called the life of soap. For the present, there is not a single factory that prepares caustic soda and soda ash in India even though the salt and the supplies of crude alkaline earth are immense. They say there is a European factory at Budge-Budge near Calcutta where caustic soda and ash are prepared. I know nothing about the quality of their articles. The demand for these articles is so immense that even such 20 factories will not be able to meet it. These articles are of immense use in other industries as well. Every attempt must be made to manufacture these in India. Our helplessness was proved in the last war when the prices rose to 6 times the ordinary prices. There are 3 processes—one Le-Blanc, the other Ammonia and the third Electrolytic one. In America they are preparing their soda by electricity. We in India too have got electricity and by the new Hydro-electric schemes, the power will be available at a very cheap rate. Attempts must be made in this direction. It is reported that the Tata's have a scheme before them. If successful, they will lay Indian chemical industries under a deep debt of obligation.

#### SODA SILICATE SALT.

Soda-silicate is manufactured in India in some glass factories. It will be available locally with increased and regular demand. For ash, caustic soda and silicate, we must for the present hopelessly depend upon foreign supplies. Then come colours. There are special soap colours available. They are of German make. In the time of war, attempts were being made to introduce vegetable colours. Some colours can be most successfully used. Some such attempts were made even in the Research Institute at Bangalore for the Government Soap Factory at Calicut. But now, as ready and special soap colours are available they will be used as they do not require much labour. For their supply we must depend upon foreigners.

### PERFUMES

There are two sorts of perfumes one natural and the other synthetic. As for natural perfumes we can manage to get ample supplies. But this industry is as disorganised as are other industries. With better equipment, up-to-date, scientific and labour-saving plant we can hope to establish it on sounder economic lines. As for synthetic perfumes we must depend upon foreign supplies. The use of these in soap is becoming more general day by day.

### ALCOHOL AND OTHER RIQUISITES

The supply of cheap commercial alcohol is a necessity. Alcohol is required for transparent soaps. At present the commercial alcohol is exported into India even though there are so many Government distilleries. The present prices of alcohol are prohibitive and there is no possibility in the near future for this branch of industry to successfully compete with the imported articles as long as there is not sufficient cheap local supply. Without a sure and steady local supply it is impossible to conduct this on a commercial scale. The Government must give a rebate of duty on all alcohol used for commercial purposes and must issue licences to *bona fide* manufacturers for redistilling the same on easy terms. Without

redistillation this industry will not be paying

In cheap soaps rosin has become an article of necessity and up till now we had to depend upon foreign imported rosin for our supply. But the Government turpentine distillery at Bhowali has removed this difficulty to some extent.

The products of this distillery are best suited for soap purposes as far as I know. The products of this factory have been approved on the continent. The Government report shows most hopeful signs for this industry machinery—Machines and plants required, for an ordinary soap factory can be prepared locally in the workshops. The Government factories at Calicut and Bangalore get their own plant and machines (as kettles, tanks, stamping presses and tablet machines) prepared in their own workshops. For a milling and glycerine plant we must approach foreign expert makers. In some cases, it is more desirable and paying to import certain special type of machinery than to get it locally prepared. I hear that the Mysore and Nizam's Governments have ordered out special and up-to-date soap plants. Almost all of the present soap factories in Bombay and other places are equipped with local machinery.

These are some of the problems connected with soap manufacture.

## The Soul of Business.

### THE SOUL OF BUSINESS

That quality is the soul of business is a maxim which we might well take to heart. That is a lesson which has been well learnt by the British businessman. Note this from the "Textile Mercury": "It is impossible to deny that margins are good but the profit is not so large as would appear on the surface. We know of firms that have fixed their basis for the particular quality of cotton they require right up to the end of the year. They run a certain risk in doing so, but their marks are so well known that they must of necessity make adequate provision. It is all to the good of the trade that there are firms

who absolutely rely on quality. They believe in consistency, and over a period of years this policy pays. It may be dear or it may be cheap, but it is just the same quality whatever the price. These are the firms who get a good clientele and can keep them. In good times they may sacrifice something, but in bad times their customers stick to them. This is true both of cloth and yarn. We have cloth marks on the China and Indian markets that have been established for many decades. Even after the disturbance and disorganisation caused by the war and the competition that has been experienced from native and Indian mills the same cloths are coming into renewed request. So much for goodwill."



# INDUSTRIAL DEMOCRACY AND LABOUR.

By—Mr. S. Kabboor, B.A., F.F.A., F.C.I.

**T**HERE is a growing feeling among employers that working conditions in industrial undertakings must be improved. There may be some who have, for many years, at least cared scrupulously for the well-being of their workers. But only within the last two or three years has this movement on the part of employers reached any considerable proportions in India. On the part of many, it is doubtless the expression of fear—fear of public opinion, fear of organized labour, fear of legislation. On the part of most, however, it is doubtless the *bona fide* expression of interest in the well-being of their workers and a genuine desire to improve conditions.

We have, it is true, a nominal legislation enforcing certain minimum conditions as to labour, but legislation is after all conditioned by that unsocial barrier, practicability. The law is not what it should be, is not what the experts know is best, it is a compromise between what is best and what inferior employers desire. It is a compromise effected by untechnical and often times insincere law makers. Legislation, therefore, has to bring recalcitrant employers up to a minimum level set by law.

## THE EMPLOYER AND EMPLOYEE

One of our most serious problems grows out of the fact that the cost of living is increasing beyond the earning power of the masses. Manifestations of discontent are breaking out everywhere. Strikes are becoming too frequent while we remain almost entirely unprepared. To-day, the average employer, in a large shop or factory, does not know his employees either by name or by face. He has no personal dealings with them whatever, and the sympathy and understanding between them, as man and man, have passed away entirely. The same thing takes place when the small factory develops into a big one. When the employer is no longer able to go into the shop and to recognise his men individually, mutual sympathy between employer and employee ceases to exist and one great element of efficiency is lost. This gap between employer and employee has been greatly widened by the growing unfriendliness of trades unions and labour unions and

by the socialistic propaganda of class consciousness. We have reached a state to-day, in the relations of employee and employer, whose simple friendliness, if not sometimes strengthened, may be well nigh impossible.

## ARBITRATION BOARDS

Therefore, there should be competent, disinterested men and women of standing in every community willing to devote their lives to the study of this serious human problem. To these experts, employers and employees would turn with confidence to obtain a peaceful adjustment of differences, if such a simple mechanism as the Canadian Act were operative in India. Working men frequently strike because they know of no better way to attempt to secure justice. Why should we not provide for a better way?

Particularly in the case of employees in concerns connected with public utilities (like Tramways) the opportunity to obtain just conditions without resort to strikes should be established. All that both sides in any controversy should, and usually do, desire is fair-play. A device like the Lemieux Act assures this. In no strike does our public receive sufficient impartial testimony upon which to base judgment as to the rights of the controversy. At least, in cases where public utilities are affected, the people are certainly entitled to full, unprejudiced information, the Lemieux Act provides for this. What is urgently needed to-day is a re-examination of our laws bearing upon the relation of employer and employee and a careful and discriminating scrutiny of various plans which are being tried by some of our States and in other countries.

## DEMOCRACY AND DISSENT

The evidences of the growth of democracy in the field of industry are many. Perhaps, the strongest and most important is the development of the organization of labour. Nowhere has the spirit of democracy been so crude, because it has mistaken the idea of equality for that of democracy.



## THE STATE AND INDUSTRIES.

*By—Historicus.*

**I**T would have been strange if the war had not given an impetus to socialistic methods, but it will be a misreading of history to regard this impetus as a warrant for an era of socialistic legislation. During a time of unprecedented national stress, the State becomes almost the only reality and supersedes most of our individual and private rights. The State alone exists, the individual is merged in the State when the nation is face to face with a critical ordeal. The emergency is such that the entire productive and industrial power of every unit in the State is converted into a source of nutrition for the State instead of being a source of profit to an individual or group of individuals. The State controls all, assimilates all and uses all. That is the theory of a State in war.

### THE STATE IN WAR AND PEACE

But to proceed to deduce from this that after the return to normal times, the state of socialism that was necessary during the war should by legislation be prolonged or that the State should take upon itself productive and industrial responsibilities superseding civic agencies is like arguing that what was necessary for our abnormal condition will be good for normal conditions also. Nobody would deny that the responsibilities of the State are bound to be on the increase. Medical aid, housing, education, old age relief, healthy recreation—in fact, scores of things will receive increasingly greater attention from those who carry on the government. This has been specially the case in England and we dare say all parties are united in making life more worth living after the war. But this does not mean that the State is going to supersede the private producer, manufacturer, grower, and organizer and take upon itself directly the function of industrial activity in a material sense.

### PROFIT AND POVERTY

No business will be worth running unless there is profit to make in it. And if the socialist politician should step in and ask why should not the State "nationalise" the business and the profit alike, the answer is it

will mean a most ruinous innovation. Those who advocate the innovation do so on the ground that that will banish poverty. How and in what way has been scarcely explained. If the annexation of profits to the State that would have otherwise gone to the capitalists can make any change in the general condition of poverty, it is only in the direction of depriving the capitalist of a source of investment in his own country. Perhaps, the workers may claim that a portion of the capitalist's profits should be used for raising their wages. But that does not mean that the poor man will cease to exist. It may make some rich men less rich and some poor men a little better off, but the question of poverty and inequality will remain the same. And capital, at least an appreciable part of it, must gradually be driven out of the country.

### PROPOSED STATE SOCIALISM

We know that the Labour Party in the House of Commons hugs this delusion to its bosom, namely, the delusion of making the State take the place of the capitalist. The State will become a big bureau of employment and will be run by the employees themselves. We can imagine the inevitable in less than thirty months. A fierce rivalry between industries and their special advocates will be the immediate result, leaving the general population at the mercy of these advocates who will be engaged in a perpetual warfare on behalf of their particular pet industries.

### CONCLUSION

Now, as society is organised, Government look after the peace, progress and prosperity of the community in general, leaving the society to be a self-acting and self-adjusting mechanism. But under the socialist regime, there will be first a disorganisation of industries, shrinkage of capital in the country, inefficiency in the control of matters of primary and vital importance to the State—in fact, a period of all round downfall. The vast bulk of all political parties cannot, however, fail to join their forces against such a contingency becoming probable.

## WATER POWER RESOURCES OF INDIA.

By—Rao Sahib G N Sahasrabudhe.

**A**MONGST the various powers that move the machines, so much necessary for the industrial development of the country, water power is much talked of lately in the whole world, including England and India. Every nation is trying to see the potentialities of water power resources and in England a Committee, "The British Water Power Committee," has been appointed in 1914 to reconnoitre and examine the potentialities of water power resources in the Empire.

The outbreak of the war rapidly brought matters to a head, all the world over, for it was soon found that power was at the root of all war demands and that electricity was the most adaptable form of power. It was found that Switzerland and the United States had utilized only 21 per cent of their available resources and Germany no less than 43 per cent.

### ENQUIRY IN INDIA

In India the formation of the Indian Munitions Board was the first step in co-ordinating existing industries for war purposes and this was soon followed by the appointment of the Indian Industrial Commission. In Chapter VI of the Report of the Industrial Commission the question of power is discussed in all its bearings and the necessity for a Hydrographic Survey of India is emphasised in paragraph 99. The Hydro-electric power schemes in Mysore initiated by the Mysore Government and the Hydro-electric works in the Deccan Ghats and the Koyana projects installed by the energetic Firm of Messrs. Tata and Sons of Bombay were already in evidence which have conclusively shown the potentialities of the water power installation as a great industrial power on the largest scale possible.

### THE BARLOW REPORT

His Excellency Lord Chelmsford the Viceroy of India was naturally impressed with these large schemes and has ordered the carrying out of the Hydrographic Survey of India as recommended by the Indian Industrial Commission and appointed a Committee consisting of two officers—(1) Mr G T Barlow, the Chief Engineer, Irrigation Branch, United

Provinces, associating with him in the enquiry (2) Mr G W Moates, M I E E, Electrical Adviser to the Government of India. The Committee made a tour in the whole of India and have issued a preliminary report on the water power resources of India.

The Report is excellent though not exhaustive and I believe the defects will be possibly removed in the Final Report that may be submitted later on.

The Report discloses that there exists extensive potentialities of water power resources in the country and it rests with the Government of India to take the initiative in the matter and create this cheap power so as to be available for use by the small as well as the big industrialists of the country as desired in the Holland Commission's Report.

### THE WORLD'S PRESENT POWER DEMAND

The British Water Power Committee states that it is impossible to estimate with any pretensions to accuracy—the power now being used in the various countries of the world. Independent estimates based on such data as are available tend, however, to show that it is of the order of 120 millions horse power made up approximately as follows:

(1) World's factories including electric lighting and street Railways	75 Millions horse power
(2) World's Railways	21 Do
(3) World's shipping	24 Do

Total 120

This includes all steam, gas and water power.

The Report says—for a full discussion of new industries which may arise in India, if cheap electric power is available—the Report of the Industrial Commission may be referred to. The Industrial Handbook, 1919, issued by the Indian Munitions Board also merits close study. Among these industries may be mentioned the electric smelting of iron ores and the electric production of steel and its alloys.

electric welding now extensively employed, the production of aluminium from alumina, prepared from the local bauxite deposits, the manufacture of calcium carbide, the direct fixation of atmospheric nitrogen into the nitrates of commerce, electrolytic production of chlorine gas and the preparation of phosphorus and of abrasives like carborundum. All these processes are in actual use in various parts of the world where the raw material and power are found. In some cases, the process is electro-chemical, in others electro-thermal but in all cheap power and large scale production are essential to success.

The British Water Power Committee's Report further says about what has been done and what in future may be done in some of these matters —

Electro-metallurgy and electro-chemistry have rendered it possible to handle materials not workable by any other means, have made

available new materials and have greatly cheapened the production of many other materials of wide use. Aluminium, calcium carbide, chromium cyanide, silicon, carborundum are products rendered commercially possible only by electrical processes, while alkalies, hypo-chlorite, phosphorus, magnesium and sodium nitrate are produced most economically by such processes. Great developments have recently taken place in the production of electrolytic copper and zinc and in processes for the electric smelting and refining of metallic ores.

All these processes demand relatively large amount of energy. The world's production of calcium carbide for example was 340,000 tons in 1913 requiring 100,000 continuous electric horse power for its production while the energy used at the end of 1915 for electric furnaces in the United States alone was approximately 300,000 electric horse power.

## FRUIT INDUSTRY IN THE NILGIRIS.

We are glad to note from a Publicity Bureau Circular that the local Government are going to make an earnest effort to develop fruit culture in the Nilgiris. The United States of America are making huge profits out of its fruit industry and we do not see why our country also should not utilise suitable lands such as those that are available in the Nilgiri Plateau for the cultivation of fruits. We are sure that if the industry is developed on proper lines, a profitable export trade in it can be established. People in the plains complain of the difficulty of obtaining apples, oranges, and other fruits and what little we get from Bangalore have now to be purchased at such high prices that many who used to go in for these have had to give them up. The Government's decision to make available to the Agricultural Department the services of the Curator of the Government Gardens and Parks on the Nilgiris for making experiments in this line is thus to be welcomed. The details of the arrangement are given in the Publicity Bureau note.

"It has been" says the Note decided to transfer to the Director of Agriculture the control of the Government Gardens and Parks on the Nilgiris with effect from the 1st April 1920. "The Curator of the Gardens" it continues, "will from the date be a member of the Agricultural Department and will continue in charge of all the items of work for which he is at present responsible. But he will be relieved of many of his routine duties by the strengthening of his staff of subordinates. He will thus be able to devote more attention to improving the cultivation of the potato on the Nilgiris and to studying the possibilities of fruit culture on the Nilgiri Plateau." The Note concludes "The importance of the Nilgiri potato is already generally admitted and it will be remembered that Government recently approved Sir Frederic Nicholson's proposals for the establishment of a jam and pickle factory at Coonoor. There is therefore special reason for giving assistance to the growing of fruit on these hills."

## INDIAN STATES.

### Water Power in Travancore and Cochin.

**O**NE of the biggest problems that is forcing itself for a speedy solution is in connection with the importance and necessity of tapping the enormous water sources of India for the purpose of generating power. If we go into the literature that has gathered round this important subject for the last five years from professional men, we would be able to realize that water power will be one of the most potent, if not the chief factor that will contribute to India's future industrial development. For the sake of brevity, we will confine our attention to some of the authorities in India who have expressed their views on the need of water power and the existence of the vast resources for its successful production. One of them is Mr. Alfred Dickinson. He is the well-known Engineer who planned and carried out the construction of the dams to supply Bombay with electricity. In the course of an address delivered lately he remarked that steam power was being gradually replaced by water power, and that the cheapness of the latter and the facility with which it could be produced would, in the long run, eliminate the former.

#### THE WESTERN GHATS

An enterprising Indian firm that took the initiative in this direction is that of Messrs. Tata and Sons. A scheme is being matured by this company for the construction of a dam across the valley in the Western Ghats. It is estimated, that by harnessing the water, about 80,000 horse power could be provided every hour throughout the year. One of the Engineers who is responsible for the works in connection with the Tata Hydro-Electric Works from the beginning says that "We can produce enormous quantities of water power which will be capable of increasing the food supply, ensuring the growth of materials for industrial products, providing the fertilizers and the light, reducing the possibilities of famine and making the population to be less dependent upon agriculture and the eccentricities of the season." Professor H. Stanley Jevons of Allahabad is another authority who recently suggested a scheme for utilizing the waters

of the Ganges. A third is the Water Power Committee recently appointed by the Board of Scientific Inventions to investigate the question of utilising water power chiefly in the British Empire. According to the report of this Committee the potential power of the whole Empire amounts to at least fifty to seventy million horse-power. It is capable of immediate economic development, provided that it is carried out under the direction of competent experts.

#### THE PERIAR PROJECT

Coming nearer home we have the Periyar Water Scheme, as one of the largest water resources in India. It was constructed with the object of mitigating the thirsty plans of the Madras District. At first there was some difficulty in getting the sanction of the Travancore Government, as they were unwilling to part with a portion of their territory through which flows one of the greatest rivers with a number of smaller streams running westward into the sea. The advantage which the North Travancore ryots enjoyed for the irrigation of their lands was immense. With a view to retain its utility and to extend it as far as possible, the Travancore Government designed a project on a modest scale for the distribution of water to a limited area. But the Durbar were induced to yield to the wishes of the Madras Government with the result that the latter succeeded in completing one of the largest water works in India under the direction of Colonel John Pennycuik of the Royal Engineers during the Governorship of Lords Curzon and Wenlock at the cost of over Rs. 10 lakhs. The water from the river passes through a tunnel of 16½ by 7 ft. The volume of water flows at the rate of 70 by 2 ft. per second. It irrigates thousands of square miles of land. Now the question is whether this enormous quantity of water could be utilized in generating electricity. A scheme was once projected for this purpose, but it failed as the idea was not so prominent then as it is now. One of the experts who seems to have studied the question closely is of opinion that electricity

could be generated by utilizing the water power of the Periyar channel which goes into absolute waste now

#### ITS EXTENT

The outlet of the Periyar lake, which is about 21 miles long & at Thekkadi, and is fed by seven rivers. The total area of catchment is nearly 232,801 square miles. The Periyar dam is situated about fourteen miles from the head of the lake and seven miles from Thekkadi. The dam, which is 1,200 ft. in length, 175 ft. in height with a width of 85 ft. at the base and 12 ft. at the top, is built across a valley connecting two hills. When the lake is full, which is usually about the beginning of December, nearly 152 ft. of water is registered at the dam. As it sinks to 132 ft., the head-slucce is closed and the distribution of water stopped. At this time there will be about 30 ft. of water available from a lake of 21 miles long. When the water rises above 152 ft. the sluice is opened and the water allowed to escape into the sea through Travancore.

#### TWO BIRDS AT A STROKE

It may perhaps be contended that since the dam has been constructed for irrigation purposes how could the water be utilized for the generation of power. No doubt, as an irrigation scheme, it has proved a success, as its benefits are distributed over 130,000 acres of land of which 40,000 grows two crops yearly and sometimes three, instead of one before the construction of the dam. But the opinion is held that if a scheme is worked out under expert advice the Periyar river could be made to serve a double purpose—that of irrigation and water power for industrial development.

As we have shown, a large quantity of water goes into waste at a certain period of the year. The water thus wasted could also be utilized in generating electricity, and the District of Madura which is now watered by the Periyar river could be equally benefited by a water power scheme. The value of the Periyar river is great as an economic asset, and since the problem of increasing water power in India is engaging the earnest attention of the authorities, the Periyar river, as the greatest reservoir in India, affords every facility for a practical solution. The adoption of a scheme such as the one we have briefly outlined will not militate against the main functions of the Periyar Irrigation Scheme. The usefulness of both could be equally balanced with the result that one of the most important Districts in the Presidency could be converted into a centre of industrial activity.

#### THE COCHIN SCHEME

While on this subject we are reminded of the Chilacudy Water Scheme projected during the Dewanship of Mr. Bhoré. The Cochin Durbar was assured by expert engineers that the project would be a successful one. Now that Messrs. Tata and Sons, the pioneers in this connection, are raising up their huge Oil Mills at Eriakulam, there is every prospect of the Cochin Scheme being brought within the range of their speculation. Chilacudy river is one of the largest streams in the State, and if a scheme is successfully worked out to generate water power, it will be of immense help for the development of industries, the necessity and importance of which is being fully recognized by the Cochin Durbar.—*The Malabar Herald*

## INTERNATIONAL TRADE CONFERENCE.

We note from our American contemporary, "Exporters Review," that an International Trade Conference was to have been held at Atlantic City during the week commencing September 29, under the auspices of the United States Chamber of Commerce which extended an invitation to Great Britain, France, Italy and Belgium for a joint commercial mission to visit America for the purpose of acquainting American business men with the situation abroad, explaining European economic difficulties

and suggesting the best method of co-operation with the view of bringing about closer relations between the United States and the European countries with which she was associated in the war. The invitation was promptly accepted, and Elliot H. Goodwin, General Secretary of the Chamber and Ben H. Lambé, Associate Editor of "The Nation's Business" have gone to Europe to complete final arrangements for the organisation of the joint mission, and its trip across the Atlantic.

## TOPICS OF THE TIMES.

## AGRICULTURE.

**The Sugar Committee.**

*The following are from a resolution of the Government of India, dated Simla, the 2nd October 1919 —*

Among the many questions which have been brought into prominence by the war that of the possibility of organising and developing the Sugar Industry in India stands high in importance.

**THE POSITION IN INDIA**

Regarding the desirability of such expansion there can be no doubt. The food value of sugar is high, the annual consumption has been increasing steadily for many years, and in India no less than elsewhere. Sugar-cane is indigenous in India which until very recent years stood first of all countries in the world in its area under cane and its estimated yield of cane-sugar, and even now ranks second only to Cuba. Yet it is notorious that the yield both of cane and raw sugar per acre and the percentage of available sugar extracted from the cane are undesirably low. While, therefore, India should be in a position, as she was in the past, to produce a surplus of sugar for export, she has in fact had to supplement her own supplies by imports the tendency of which steadily to increase has only been checked by war conditions. The same conditions have also served to emphasize the disadvantages involved in relying upon external sources of supply. The world prices of sugar have risen enormously, with the result that, while imports between 1913-14 and 1917-18 fell in quantity from 900,000 to 500,000 tons approximately, they rose slightly in value from 11.96 to 15.32 crore. The beet sugar industry has been disorganised over extensive areas in Europe and, if India cannot now look to herself to supply her own wants, she is faced with the alternative of either reducing her consumption of sugar, or paying increased amount to obtain it.

**FIELD FOR A COMMITTEE**

But if the desirability of extending the sugar industry in this country is obvious, the difficulties involved are hardly less so. Apart from the difficulties attending the cultivation and manufacture of cane-sugar in all countries, the Indian Industry is confronted with problems

which are either peculiar to India or exist there in a special degree. The systems of land tenure exhibit great variety and are complicated by the customary laws of inheritance and joint ownership. Again, the bulk of sugar produced in India is consumed in its crude state as *gur* or *jaggery*, and this fact has an essential bearing on the prospects of a successful venture for the production of factory sugar in any particular locality. There are indications that the incentive of present prices of sugar is attracting considerable attention to India as a further source of supply, and that necessary capital and business enterprise would be forthcoming if the whole question both in its agricultural and manufacturing aspects were thoroughly investigated, and the conditions essential to the establishment of an organised industry authoritatively defined. The Government of India are, therefore, of opinion that the time is opportune for the appointment of a representative Committee to investigate the problem in all its bearings and to advise whether a definite and co-ordinated line of policy can be laid down for the promotion of further development. They have accordingly, with the approval of His Majesty's Secretary of State, decided to appoint a Committee for this purpose during the coming cold weather, under the presidency of Mr. J. M. McKenna, C.I.E., I.C.S., Agricultural Adviser to the Government of India, and with the following terms of reference —

**TERMS OF REFERENCE**

(1) To examine the various sugar-cane growing tracts of India with a view to determining the nature of the expansion possible in such tracts either by the development of a factory industry or by improvements in the existing indigenous methods, (2) to examine the possibility of consolidating the areas under cane and of the extent to which this is limited by the existing systems of land tenure, (3) to report on the work already done by the Sugar Expert with regard to the breeding and selection of improved varieties of cane and to make suggestions as to the extent and direction in which this work can be further expanded, (4) to examine the present methods of co-ordinating

work on sugar-cane adopted by the Agricultural Departments working in the various provinces and the efficiency of agricultural practice in vogue in India or recommended by the Agricultural Department, (5) to examine the existing sugar factory industry in India and to advise in what localities and under what conditions a factory industry can be successfully established, (6) to examine the economic and labour conditions now prevalent in the various districts where expansion of the sugar industry is likely and the question of improving railway facilities and other means of transport which may be required with a view to furthering the spread of the industry, (7) to investigate the work that is being done in the introduction of improved small power plants and small power factories, (8) to review the position of India with regard to the world's sugar supply and to formulate recommendations for the improvement of that position, (9) to investigate the conditions under which refined and raw sugar and molasses are imported into India, (10) to examine the effects of controlling such imports by a duty and, where necessary, guiding this duty so as to give preference to sugar grown in British dependencies, and (11) to examine the present conditions governing the manufacture of rum under license from Government and the question of distributing such Government contracts.

#### CONCLUSION

The Committee is expected to assemble on October 26th. The Government of India are not yet in a position to announce the names of all those who will serve as members of the Committee, but its composition and personnel, in so far as these have already been decided, will be as follows —

(1) Mr J MacKenna, C I E, I C S, Agricultural Adviser to the Government of India, *President*. (2) A member of the Indian Civil Service as Vice-President (to be nominated later), (3) The Hon'ble Mr. Lalubhai Samaldas, C I E, Bombay, (4) Sir Frank Carter, Kt, C I E, C B E, of Messrs Turner Morrison, Company, Calcutta, (5) Sardar Jogendra Singh, Punjab, (6) Mr J W Macdonald of Messrs Henry Tata & Sons, Ltd, Sugar Refiners, (7) and (8) two other experts to be obtained from England (will be

announced later), (9) Mr Wynne Sayer of the Indian Agricultural Service. In addition to the above the Committee will co-opt Mr. A. B. Shakespear, C I E, of Messrs Begg Sutherland and Company, Cawnpore, as a member for the period of its tour in the United Provinces, and it is proposed similarly to co-opt a representative of the industry in Southern India. Mr A E Gilhat, I C S, will act as Secretary to the Committee.

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#### Land in Agricultural Economy.

Professor W Somerville, President of the Agricultural section of the British Association, recently delivered an important paper on the part played by grass land, as compared with tillage, in the national economy. During the war, the effect of compulsory and voluntary ploughing has been to contract the area under pasture. Thus, whereas in 1914 the total area in Great Britain under temporary and permanent grass (hay and pasture) was some 21½ million acres, it was barely 19½ million acres in 1918, the area under cultivation having correspondingly increased. In Ireland the area under grass was 1.2 millions, so that the United Kingdom at present comprised about 30½ millions acres of permanent and temporary grass and 15½ million acres of land under crops other than grass and clover. This was over and above some 16 million acres of mountain land used for grazing. Professor W Somerville allows that in respect of nutritive output and the utilisation of labour and in its effect on foreign exchange, arable cultivation is far more attractive than pastoral farming, and he goes on to plead for the retention for tillage of at least all that the plough has gained during the war. The tendency at present, he goes on to say, is the other way and under the stimulus of high wages and increased costs generally, a certain amount of land has already been re-sown with grass and preparations are being made for similarly dealing with an increasing area next spring.

#### NEEDED IMPROVEMENTS.

Professor W Somerville goes on to show that although a considerable proportion of the grass land in the United Kingdom is high quality, it by no means follows that there is nothing more to be done to improve them. On the other hand, grazing practice shows that the



productive capacity of these pastures is maintained by judicious stocking during the growing season, by the regular mowing of thistles and other coarse weeds, by the maintenance of drains, by the spreading of the droppings of cattle, by the avoidance of winter grazing and in many cases by the consumption of a certain amount of cake. The remaining part of Professor W. Somerville's paper deals in a technical manner with the qualities of a permanent pasture and the relative nutritive values of the more important pasture plants and the feeding value of fattening and non-fattening grasses. Incidentally, he touches upon the problem of the improvement of third rate and inferior classes of pasture lands, of which the aggregate area is enormous.

#### THE PASTURE PROBLEM

Most of the poor grass land of the country, he continued, is associated with the heavier classes of soil and has been abandoned to grass on account of the high costs of cultivation, including, in many cases, the necessity of drainage. It is, for arable purposes, essentially wheat land, with an occasional crop of beans, and the regular intervention at comparatively short intervals of a bare fallow. Other areas of poor pasture, smaller in aggregate extent than the clays, but still of much importance, are to be found on all the geological formations of the country. Of the 14½ million acres of permanent grass in England and Wales, 70 per cent is under pasture and only 30 per cent under hay, and of the poorer classes of grass land it is certain that the proportion that is grazed is still greater. It is evident therefore that the improvement of pasture is relatively a more urgent matter than the improvement of meadows though with over 1½ million acres of permanent grass made into hay in England and Wales during 1918, the latter problem is also one of enormous importance.

#### MANURIAL EXPERIMENTS

The most famous experiments on the effects of manure on permanent hay are those started in 1856 by Lawes and Gilbert on the Meadow at Rothamsted, and continued ever since on the lines originally laid down. The results have thrown a flood of light on the principles of manuring, which has been of the greatest assistance in the elucidation of

problems in agricultural chemistry and soil physics. They have also shown unmistakably the effects of the more important elements of plant food on the yield of hay and on its botanical composition, but even supported as they were by elaborate chemical analysis of the produce, they leave us uncertain in regard to the feeding value of the herbage.

He has also much to say on the subject of the determination of the quantitative results attributable to the use of manures, singly and in combination, and the conclusion reached is that we are still in a state of much uncertainty in respect of the quality of the hay, that is to say, its effect on the animals consuming it. The experiments made so far show that the farmer's meadow lands have an attractive opportunity of judicious investment of capital on artificial manures and so improving the feeding value of the herbage.

#### GENERAL CONCLUSIONS

The conclusions at which Professor Somerville arrives are summarised below —

1 That the quality of a pasture is not primarily dependent on its botanical composition, though as a rule, the presence of white clover and other Leguminosae is generally indicative of high feeding value.

2 That poor pastures especially on clay soil, can be rapidly and profitably improved by the use of phosphites, especially basic slag.

3 That, as a rule, phosphites alone are necessary to effect and maintain the improvement, and that, of supplementary substances, potash and lime are occasionally worthy of attention.

4 That the improvement of poor pasture is very dependent on the presence of Leguminosae, and especially of white clover.

5 That renovating with the seed of wild white clover may, in the absence of natural Leguminosae, be a necessary preliminary, or concurrent operation.

6 That cake can rarely be used at a profit, and that, as an agent in improving poor pasture, it occupies an unsatisfactory position.

7 That nitrogen, whether in the form of artificial manure, or as cake residues, when added to phosphates for pasture, is always unnecessary and frequently detrimental.

8 That, in the case of hay on permanent grass land, equal weights of produce may have very different feeding values.



## INDUSTRIES.

### World's Toy Industry.

#### GERMANY'S COMPETITORS

**I**N the United Kingdom previous to 1914 the toy trade was scarcely developed. Clumsy wooden figures and lead soldiers, certainly of good quality, were being made, but the raw material came chiefly from Germany. Even in 1915, in order to supply the demand, it was necessary to have recourse to Japan to obtain the necessary Christmas-trees.

#### BRITISH ATTEMPTS

An attempt to support the toy industry by patriotic measures was also unsuccessful and had to be abandoned. However, in 1918, the exhibition opened by the Board of Trade proved that the manufacture of smooth toys and dolls' heads had taken a turn for the better—indeed, had developed to a very considerable extent. Movable glass eyes, which formerly came from Germany, are now made in the best qualities in England, and the output quite comes up to "Steiff's" highest productions, although the prices are high. Mechanical toys, such as railway trains, motor-cars, and vehicles of all descriptions, are being made, particularly since the Controller placed larger quantities of raw material at the disposal of manufacturers.

In the matter of earthen, china, and porcelain toys, such as tea and dinner services, it is essential to follow the English patterns, which are the only ones that sell in the Colonies. Former aeroplane factories are now turning out large quantities of toys.

#### FRANCE AND SPAIN

France also used to do a considerable export trade, and in 1913 its value amounted to £1,800,000. Very little of it, however, was her own make. Glass eyes and dolls' heads were of German origin. China services were made in Germany and repacked in France and sold as French goods.

Spain has only produced small quantities, and her former German imports were to some extent replaced by those from Allied countries. In 1913 her toy imports only amounted to about £20,000, and if, in 1917, they increased to £60,000 the increase was due to higher prices and not to quantities.

#### NORTHERN EUROPE

Scandinavian trade in toys, both in imports and exports, has developed very considerably. During the period 1913 to 1916 the former progressed from £50,000 to £70,000 and the latter from £6,000 to £14,000. The chief article exported was India rubber balls. The total Swiss manufactures amounted to £100,000 per annum, and consisted for the most part of wooden toys. In metal goods Switzerland was unable to compete with Germany. Swiss exports were comparatively insignificant and only reached £1,720 in 1917.

#### THE UNITED STATES

In 1913 the United States possessed 71 factories, producing toys to the value of £1,500,000. In 1918 the number of factories increased to 165, and the total value of manufactures reached £1,000,000, 65 per cent. of which was for account of the old firms.

The President of the Toy Union expressed the hope and intention of American toy-makers to become the world's greatest suppliers, and whilst it may be doubtful whether they will succeed, it is certain that at present America is flooding the markets with first-class articles at comparatively low prices. In 1914 the United States exported toys, chiefly to Canada, to the value of £60,000, and in 1917 the amount reached £360,000.

#### JAPAN

Japan was the greatest exporter of low-grade toys. In 1910 their value was £150,000, in 1913, £250,030, and in 1917, £830,000. The manufacture of toys in other countries is keeping pace with the demand, but the volume of business is smaller and scarcely affects the markets.—*The Times*.

### Fancy Leather Goods Industry

Prior to the war, writes a correspondent to the *Times*, the Austrian manufacturers had quite the best reputation for fancy leathers and leather goods, their knowledge of dyeing far surpassing our own, and the light and artistic finish they were able to give to their small goods, such as purses, bags, and similar articles, enabled them to secure a large portion of the

**British and foreign trade** Their predominance has, however, been shattered, probably for good and all, provided we do not take matters too easily and permit them and the German section to overtake us

The great vogue of the lady's handbag has produced a bewildering variety of material, for not only is leather employed in its production, but, owing to the world shortage of the staple, other materials such as silks, brocades, and velvets, have had to be employed. Many of the high-grade bags are beautifully made, the leather—largely calf—being hand-embossed, with floral and scroll effects, with engraved frames in green, gold, or rose, and lined throughout with finest quality suede. These have the advantage of durability as well as of beauty of design and workmanship, but, of course, they command high prices, varying from £2 to £6 or more. Further, they are often expensively fitted with purse, mirror, card case, &c.

The art of decorating and beautifying leather has been extended by all sorts of means, scientific as well as hand methods being brought into the service whenever available. For instance, embossing and graining plates are made by a comparatively new electro process which assures perfect imitation of the 'grain' of the natural skins. The extreme prices ruling for calf, seal, goat, sheep, pig, lizard and alligator skins, which show no present sign of relaxing, make the use of imitations of these classes of leather increasingly imperative. Crust shivers (split sheep skins), one of the common sorts of fancy leathers, now command about four times the price they realized in 1913, goat leathers have appreciated to the same extent, making from 17s 6d. to 32s 6d. per lb. first hand in the public sales, and labour and all sorts of material have all advanced very heavily.

Fortunately, conditions of production, although difficult and costly, are on a better footing in England than anywhere at the present time, so that there is every reason to anticipate the maintenance of our own market, and, in addition, the possession of an important overseas section comprising our own trade and that wrested from our late enemy competitors.

### Ground-nut Oil.

#### GROWTH OF NEW BRITISH INDUSTRY.

One of the most remarkable features of the development of the vegetable oil industry in Great Britain that has taken place during the last three or four years is the growth of our imports of ground nuts (or peanuts, as they are called in America), which have risen from about 11,000 tons in 1913 to over 135,000 tons last year. Before the war ground nuts were scarcely known to oilseed crushers in the United Kingdom, though they were one of the most important sources of oil used by the French oil manufacturers at Marseilles, who imported over 500,000 tons of 'arachides,' or ground-nuts, in 1913, says the *Times Trade Supplement*.

A feature of the world's trade in ground-nuts before the war was that although 350,000 tons were exported annually from countries of the British Empire, chiefly India, the Gambia and Nigeria, only a few thousand tons were shipped to the United Kingdom. But during the war oil manufacturers in Great Britain have taken up the crushing of ground-nuts on a large scale, and are thus making use of an Empire product, the value of which was formerly appreciated only by foreign countries.

Ground-nuts, or peanuts, are grown in the United States, the West Indies and South America, in West and East Africa, in India, Indo-China, the Dutch East Indies, China and Japan, and in many other parts of the world. The chief exporting countries are India, West Africa (the Gambia, French Senegal and Nigeria), and China.

#### USES OF GROUND-NUT OIL

The uses to which ground nut oil can be put are numerous and varied. The best qualities of cold pressed oil make excellent salad oil, it is used for cooking purposes, in the manufacture of margarine, and in canning sardines. The lower grades of oil are suitable for soap-making and are used in particular for Marseilles white soap. Roasted peanuts, as is well known, are a very popular article in America. In England during the last few years they have been extensively used in chocolate and other confectionery as a substitute for almonds. Experiments made in the United States have satisfactorily proved that ground-nut oil of

good quality can be eaten in the same quantities, and can be as thoroughly digested as those fats and oils at present most commonly used in the diet. Ground-nut oil, like olive oil, can be obtained by cold pressing and when thus made from sound, sweet nuts it need not be refined. Such cold-pressed oils are superior for salad purposes to oils that are not so pressed and afterwards refined.

In crushing ground-nuts on a large scale for oil a great deal of waste results from failure to remove dirt and other foreign matter before crushing, so that oil and cake are produced of a quality inferior to the products which might be obtained if care were taken to clean the nuts thoroughly and remove both shell and the red coating of the kernels before pressing. If blanched kernels are used, oil of the finest quality is obtained and the cake can be ground into meal and used for mixing with wheat and other starchy flours for making biscuits, bread, and cakes. The ground-nut, or peanut, being universally accepted as a good and wholesome nut to be eaten, it is rather surprising that so little attention has been given to the possibility of utilising ground-nut cake as human food. Thousands of tons of this cake are turned out by the factories which crush ground-nuts for their oil. If the improvements which have been indicated above were introduced in the method of oil expression a cake could be obtained which would conform to a definite standard of purity and be fit for human consumption.

#### EXPORTS FROM INDIA

India's export trade in ground-nuts has fallen from 277,000 tons in 1913-14, the year before the outbreak of war, to only 17,200 tons during the year ended March 31 last. This was largely due to lack of shipping. The trade may now be expected to revive rapidly.

It is generally understood that the best edible oil can only be obtained from ground-nuts imported in the shell and decorticated before pressing. Many of the ground-nuts exported from India are decorticated before shipment and reach Europe in poor condition, owing chiefly to faulty methods of shelling, which damage the kernels, and the ill-effects of the long voyage on damaged kernels. Shelled ground-nuts, however, from Nigeria

have reached Europe in good condition, and have been used for the production of edible oil of good quality.

#### Lac Cultivation in India

The lac industry has for many years formed the means of livelihood of thousands of the poorer classes of India, especially those inhabiting the outskirts of the forests and other areas where the lac insect abounds.

#### WHAT IS LAC?

Lac is a secretion produced by an insect which sucks the juice of plants and transforms it into resin. This secretion hardens on exposure to the air into a deep-red or orange-coloured substance, semi-transparent, and breaking with a crystalline fracture. The insect belongs to a group commonly known as scale insects.

At the time of emergence the young insect is about  $\frac{1}{16}$  of an inch in length and deep-red in colour. After sluggishly wandering about and finding a suitable spot, it fixes itself and then thrusts its beak into the tissues of the stem and begins sucking the juice. The sap thus taken into the body is greatly transformed, and is given out uniformly through pores all over the body in the form of resin, which after a few days encases the insect completely. Female insects remain fixed once for all, but male insects emerge twice a year, sometimes as winged creatures.

The lac-bearing branches are cut off and placed on trees having a sufficient number of succulent branches. When the young insects have swarmed out, the old lac-bearing branches are removed and the resinous incrustation (stick-lac) is scraped off with a knife, ground in a mill, soaked in water, and washed. The pure animal resin (seed-lac) thus obtained is mixed with colophony and orpiment, cooked over a slow fire and drawn out into thin sheets, in which form it is commercially known as shellac.

#### THE POSITION IN INDIA.

The United States Vice-Consul in Calcutta calls attention to some interesting details furnished by Mr. C. S. Misra, first assistant to the Imperial Entomologist at the Agricultural Research Institute, Pusa, regarding the present condition of lac cultivation in the plains of

**India** During the last decade the industry has passed through many vicissitudes. Over-production, no doubt, contributed to a large extent to the lowering of prices of the crude material. Prices reached their lowest point about a year after the outbreak of the Great War—22 rupees per maund (about £2 per cwt)—at which figure lac cultivation is hardly worth while. New uses were then found for shellac, and its exportation was limited, after which prices rose. With the steadying of prices of shellac the flow of the crude material has again become about normal. One result of the stimulus afforded by present high prices is that many persons have started the cultivation of lac in localities where success is doubtful, because the climatic conditions—an important factor in the development and subsequent acclimatisation of the lac insect—are decidedly unfavourable. On the other hand, few new attempts at lac cultivation have been made in localities which at present meet practically three-fourths of the world demand.

#### INDIAN MONOPOLY

India is the only country in the world, says Mr. Misra, which supplies the market with shellac in its various manufactured forms. The Japanese have been trying to grow lac in Formosa, the Germans experimented with lac in Amari (German East Africa), and the Department of Agriculture in Egypt has also tried to introduce the industry there. The Indian Agricultural Research Institute furnished brood-lac for these three experiments, but definite information regarding their success or failure has not yet been received.

In years when the prices rise, as was the case from 1905 to 1907, and again during 1915 and 1916, attempts are made to oust the natural lac from the market with a synthetic product, but these attempts prove unsuccessful, as the constituents of the synthetic article either cannot be obtained in bulk or the cost of manufacturing it leaves too small a profit. However, it is reasonable to expect that the partiality at present shown by consumers for shellac, which even in its standard form is more or less adulterated with foreign ingredients, such as colophony and orpiment, will at some time give way to a preference for seed-lac, which is a pure animal product, and in which impurities can be easily detected.

#### TREATMENT OF CRUDE LAC

The Agricultural Research Institute at Pusa has conducted experiments in the treatment of pure lac by grinding stick-lac to standard size, soaking and washing in water, adding monohydrated sodium carbonate, then aerating, and frequently turning in the shade until thoroughly dehydrated. Samples of the product, which was a beautiful pale brown in colour and considerably superior to the seed-lac obtained without the addition of the alkali, were judged by a London firm to be twice the value of the untreated product.

It is pointed out by Mr. Misra that the supply of stick-lac can be increased by removing all the lac from the trees a fortnight before the swarming of the young insects takes place and putting it on trees already pruned for the purpose, and then not gathering the stick-lac until after the swarming occurs, instead of before, as has often been done. Prior to 1908, when lac dye was a marketable product of considerable importance, it paid to remove the stick-lac before swarming and when rich in colouring matter, but now, with the introduction and extensive use of aniline and other dyes, lac dye has sunk into insignificance. Experience has shown that stick-lac obtained from pruned trees is richer in resinous content than that obtained from unpruned trees, and that the successive broods reared on pruned trees are not so liable to disease. It is also a noteworthy fact that brood-lac should be obtained from a locality having similar climatic conditions to those obtaining in the place to which it is to be transported, and that brood-lac does best when transferred to a tree of the same species as the one from which it was taken.

#### TRADE IN LAC

The heaviest lac production is in the north-eastern section of the Indian Peninsula, in parts of the United Provinces, Central Provinces, and the Province of Bihar and Orissa. There is also an area in Eastern Burma, one in Western Sind, and a section of Central Assam, where quite large quantities of lac are collected, as well as smaller quantities in scattered sections.

The value of the shipments of lac (mostly shellac) from India in 1916-17 was £1,819,000, 78 per cent going to the United States, which has been the largest buyer of Indian lac for the last twenty years

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### **Cocoanut Industry in Ceylon.**

#### **OPENING FOR CAPITAL.**

The expansion of the cocoanut industry, particularly among European capitalists, will always be associated with the name of that acknowledged authority on cocoanuts, Mr Kelway Bamber (says *The Times of Ceylon*) Few have done as much as he to urge on a not over-credulous European public the relative advantages of cocoanuts as compared with tea and rubber. Thanks to him, European capital has been freely spent in the development of an industry hitherto the monopoly of native capital.

#### **THE PAST**

It was the keen eye of Mr Bamber that first foresaw the unlimited future possibilities of the cocoanut industry at a time when experts in England discovered a cure for removing the rancid taste from margarine which was the only obstacle to the new product competing successfully with butter. 1911-12 marked this period and it synchronises with the opening of all the young plantations in the Straits and in Ceylon. Local copra from this period onwards, with very slight fluctuations, was slowly but steadily rising, until the outbreak of the war, when the sales stood at over Rs 100 a candy.

#### **EFFECT OF THE WAR**

With the commencement of the war this industry, like most others, was hard hit. Estates in bearing were just able to tide over the period 1914-1918 (the case of the Company that recently paid 4 per cent with copra selling at Rs 52 is typical). But with regard to other Companies, almost all were young, earlier palms just coming into bearing. These fared worst. A profitable return at the earlier stages would have gone far to tide over financial difficulties.

#### **EUROPEANS AND COCOANUTS**

Apart from financial loss this state of affairs has given birth to the erroneous impression, shared by Europeans themselves, that they are not able to compete in cocoanuts as successfully as native owners do. Native management may

result in a small saving on establishment charges and perhaps something on labour, but what do these amount to in the aggregate? Is it a matter for serious consideration? Are there not corresponding advantages, under better supervision and control to speak nothing of initiative. Given time and opportunity—he has had an abundance of the worst of bad luck—European owned estates will yet show as good or better results over others, as the working of the next two years will show.

#### **WORST AT AN END**

It is a relief to think that the worst is over. Large and increasing crops being assured, and with every probability of the market rising and remaining well over pre-war rates, hereafter, the prospects of cocoanut-owning companies are undoubtedly bright. Perhaps it may be here stated for the information of the uninitiated that cocoanuts take more than double the time tea and rubber take to give a return. Cocoanuts yield best after the 10th year.

What will copra touch? On the 14th July, copra has sold at Rs 120 per candy as against Rs 96 a fortnight ago. How high it will rise it is difficult to prophesy, but that it will rise much higher it is easy to foresee. Will the rise be temporary? The answer is, will the demand for copra and cocoanut oil continue or can Europe afford to dispense with these vegetable fats of proved utility and nutrition? Copra was selling at £60 a ton a month ago as against £34 to £40 controlled prices. It is quoted at £65 a ton and with freight available in increasing proportions and the demand greater than ever—the exchange being the only obstacle—the probabilities are that copra will continue to rise.

#### **SUCCESS OF MARGARINE**

When the success of margarine was assured in 1913, copra assumed an upward tendency and stood at over Rs 100 a candy. If the war did not intervene what would copra be selling at now? Rs 120 to Rs 130 a candy, a fair guess. Once exchange is settled and business becomes normal (after a good deal of "soaring" to make up for the 4 war years' deficit) copra will once more revert to normal and remain at Rs 120 to Rs 130 a candy. The imports of cocoanuts to Great Britain rose from 98,583 cwt in 1907 to 858,192 cwt.

in 1911, an increase of 500 per cent in four years. We have also the knowledge that Great Britain alone wants 500 tons a day, whereas the actual supply is about 24 per cent of the requirements. What of France and whole of Europe?

#### A LUCRATIVE INVESTMENT

Lord Leverhulme says "I know of no field of tropical agriculture that is so promising to the present moment (1914) as coconut planting, and I do not think in the whole world there is a promise of so lucrative an investment of time and money as in this industry. The world is only just awakening to the value of coconut oil in the manufacture of artificial butter of the highest quality and of the bye-product copra cake as a cattle food." Says another authority "since the adoption of nut-fat in the manufacture of margarine most of the old and unreasonable prejudice (rancid taste) against it has disappeared and its consumption is rapidly increasing. In many districts it has a much larger sale than butter and its consumption is in no way confined to the poorer classes." To these statements has to be added another factor which is of recent growth—the longer purse at the disposal of labour, for necessities not within easy reach hitherto. With copra selling at £10 a ton in London it has been found possible to sell margarine at about half the cost of butter and with the assurance that margarine is the more wholesome diet for the human system, the position devolves itself into this—Can butter be produced in such immense quantities and be sold at a cheaper rate

as to supplant margarine (not taking into consideration for the moment the relative merits of the two commodities) or will margarine eventually be sold at a price equal to that of or higher than butter? In the latter alternative the higher price of margarine is bound to reflect on the markets for copra and coconut oil.

#### NEW USES

The substitution of coconut oil for dripping, and the wider field of copra as a cattle food still await development. Copra is now being exported at a loss of about 20 per cent exchange (high freight not being taken into consideration) so that the correct sale price is actually local rates plus loss on exchange. While a steady rise may reasonably be expected weekly, the high water mark for copra will only be reached when the exchange problem is settled.

#### OVERPRODUCTION

The only possible cause that can bring about a slump in the market is overproduction. On this account there need be no fear, for Great Britain alone wants 500 tons a day and this is what any one best Ceylon estates can produce in a year! Fears of overproduction may safely be put aside for generations to come. The above are facts worth pondering over. An intelligent public can make their own deductions and draw their own conclusion as to the price copra will sell during the next three years, and thereafter, and if their figures run on lines similar to the writer's, then calculations should read pleasantly.

#### MANUFACTURE OF GLUE.

We understand from the Publicity Bureau that the manufacture of glue which was in great demand for use in the construction of aeroplanes, was undertaken by Mr. K. C. Srinivasan, the Chemist of the Leather Trade School. Experimental work was carried on in the Presidency College Laboratory and eventually for the first time in India, glue of good quality was successfully manufactured. Further experiment is therefore still necessary to show whether the glue can be manufactured on a commercial scale at a profit. At this stage Messrs. Beardsell & Co. have come forward with an offer to undertake and to finance the experimental manufacture of glue in a factory. Mr. Davies, the Director of Industries, has accordingly recommended that the services of Mr. K. C. Srinivasan should be lent to the firm to assist in pioneering the industry. The Government have approved this proposal and the services of Mr. K. C. Srinivasan will accordingly be lent to Messrs. Beardsell & Co. for a period of one year, the firm paying Mr. Srinivasan's salary and also a contribution towards his leave allowances and pension. The site of the old oil press near the Leather Trade Institute which is not now used by the department will at the same time be leased for a year with some spare departmental plant for the purposes of the factory.

## RESEARCH AND INVENTION.

### Science for Industry.

#### AMERICAN LABOUR'S DEMAND FOR STATE AID.

**A**CCORDING to the American journal *Science*, the American Federation of Labour has issued an important manifesto on scientific research, and has sent copies of it to President Wilson, the President of the Senate, and the Speaker of the House of Representatives. The following is the text of the manifesto —

Whereas, scientific research and the technical application of the results of research form a fundamental basis upon which the development of our industries, manufacturing, agriculture, mining, and others must rest, and

Whereas, the productivity of industry is greatly increased by the technical application of the results of scientific research in physics, chemistry, biology and geology, in engineering and agriculture, and in the related sciences, and the health and well-being not only of the workers but of the whole population is well, are dependent upon advances in medicine and sanitation, so that the value of scientific advancement to the welfare of the nation is many times greater than the cost of the necessary research, and

Whereas, the increased productivity of industry resulting from scientific research is a most potent factor in the ever-increasing struggle of the workers to raise their standard of living, and the importance of this factor must steadily increase since there is a limit beyond which the average standard of living of the whole population cannot progress by the usual methods of re-adjustment, which limit can be raised only by research and the utilization of the results of research in industry, and

Whereas, there are numerous important and pressing problems of administration and regulation now faced by Federal, State and local Governments, the wise solution of which depends upon scientific and technical research, and

Whereas, the war has brought home to all the nations engaged in it the overwhelming importance of science and technology to national

welfare, whether in war or in peace, and not only is private initiative attempting to organize far-reaching research in these fields on a national scale, but in several countries governmental participation and support of such undertakings are already active, therefore be it

Resolved, by the American Federation of Labour, in convention assembled, that a broad programme of scientific and technical research is of major importance to the national welfare, and should be fostered in every way by the Federal Government, and that the activities of the Government itself in such research should be adequately and generously supported in order that the work may be greatly strengthened and extended

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### Australia's Valuable Achievements

It is only within the last 12 months that there has been any concerted move to associate scientific investigation with the conduct of Australian industries. The older generation fought shy of the scientist, the university professor, and the laboratory. But the prejudice is dying, and the enlistment of the very best brains is bringing reward, says the Sydney correspondent of the *Times*, to both primary and secondary industries. The following is a brief abstract of what has been accomplished and what is in progress —

For the first time in Australia it has been demonstrated that a good quality of paper can be made from trees of the eucalyptus family. Young kauri was used. A considerable number of Australian plants have been tested for their paper pulping qualities, the results in some cases being favourable.

Following on the work done on the subject of power alcohol and alcohol engines, a method has been discovered for starting these engines from cold.

Heavy losses having been incurred by a Western Australian potter through vitrified ware, local clays were tested and their use eventually recommended. They proved suitable, and this ware has been made in Perth from Australian clays.



Seger cones for determining kiln temperatures were formerly imported, chiefly from Germany and the United States. They are now being made out of Australian clay.

A mechanical cotton picker has been constructed embodying the results of initial laboratory tests, and suitable tractable varieties of cotton have been planted for a large-scale test.

A thorough investigation into the constitution and physical properties of Posidonia fibre has been completed. This is a necessary preliminary to developing the commercial utilization of the fibre.

Conferences have been held in each State, and the cordial support of engineers and representative men throughout the Commonwealth has been accorded to the institute's scheme for the development of engineering standardization.

A large amount of information as to measures taken in other countries for the scientific control of road construction and maintenance has been obtained, and a committee is preparing a scheme for initiating experimental work in Australia.

A fundamental investigation into the chemical constitution of "gum" resin has already resulted in the isolation of several

new substances not previously known as a constituent of resin.

Investigators in Tasmania have succeeded in manufacturing a new product from kelp. It turns perfectly in the lathe, takes a high polish, and is suitable for making insulators, buttons, and various other articles.

A process for getting rid of the objectionable colour in mangrove tanning has been worked out, and large-scale experiments are now being carried out to test the process on an industrial basis.

A new parasitic fly which destroys the pupae of sheepflies has been discovered in Queensland. Its life history is being worked out, and specimens have been sent to the National Museum, Washington, United States of America, for determination.

Specimens of the water hyacinth or river weed have been analysed. The results show that the plant can be used as a source of potash.

Methods for obtaining potash salts from various Australian deposits of alunite have been worked out. If certain important developments now proposed take place, potash from alunite will be available as a fertilizer to be used in the manufacture of artificial manures in Australia.

### COTTON SEED OIL.

In Britain the oil trade needs not less than 50,000 tons of cotton seed per month. Only 20,000 tons were imported in July. "It is probable that only from India can we hope to obtain enough cotton seed to place the oil trade in its old position. Little has yet been done to stimulate the import of cotton seed from India," says a contemporary.

We are waiting for the stimulant. Meantime we note that at Hull, the centre of the oil trade in Britain, the price of cotton seed oil is 98 shillings for crude Egyptian, and 96-90 shillings for crude Bombay. It would be interesting to know just why Bombay oil sells at a lower price than Egyptian, and to know if it is possible to improve the quality and raise the price.

### BRITISH SOAP IN INDIA.

The British Soap Industry is one of the best organized in the world, and its products have a unique reputation. The Chamber of Commerce (London) Journal thinks that British trade with India has possibly reached its highest point and that a downward tendency may set in. The production of soap in India is on the increase. The West Coast is well favoured as regards the supply of suitable oils. In spite of the increased local

manufacture the Indian market is not expected to be of less value to the British soap exporter, because the use of the better qualities of soap is increasing. The Indian market for imported soap is still worth about three-quarters of a million pounds sterling annually, the bulk of which is supplied by the United Kingdom. The exports of toilet soaps from the United States to India last year were in the neighbourhood of £20,000 in value.



## TRADE.

### India's Trade in 1918-19.

**A** REPORT published in the month by the Department of Statistics, India, reviews the trade and the industrial position of this country. The Review points out that "from the trade view point the year ending 31st March 1919 was an *annus mirabilis*. In none of the previous forty-four Reviews was it necessary to chronicle so many events all crowded into the space of a twelvemonth. A silver crisis, a rise in exchange, a failure of the monsoon over wide areas, a virulent epidemic of influenza, responsible, it is estimated, for a death roll of six millions, and the armistice illustrates, if illustration were necessary, the unique diversity of the year."

#### EXPORTS

In spite of these exceptional difficulties the exports to the United Kingdom and other parts of the British Empire were valued at Rs. 132 crores (£88 millions) and to the Allies at Rs. 87 crores (£55 millions). Manufactured jute was the chief export of the year, reaching the record total of Rs. 52 crores (£35 millions) as against Rs. 20 crores (£13 millions) in the pre-war quinquennium. Tea was valued at Rs. 18 crores (£12 millions), the pre-war average being Rs. 13 crores (£9 millions), and tanned hides at Rs. 7 crores (£5 millions) as against Rs. 1½ crores (£1 million). The total value of food grains exported, however, decreased to Rs. 10 crores (£7 millions), from Rs. 46 crores (£31 millions), the pre-war average. Clearing House returns exceeded the high record of the previous year by no less than 55 per cent, and the total number of new Joint Stock Companies registered during the year also increased. Prices of securities and shares showed an increase in the case of Government securities, banks, coal companies and flour mills, and a decrease in jute and cotton mills.

#### IMPORTS

It is difficult to summarise briefly the more interesting features of India's trade during the year, which are dealt with in detail in the Review. In cotton piece-goods, India's chief import, white goods and coloured goods each decreased in quantity by no less than 48 per cent, while

grey goods owing to the large imports from Japan, decreased by only 7 per cent. There has been a remarkable increase in the imports of piece-goods from Japan since the outbreak of war. Her share in grey goods rose to 35·4 per cent from 2 per cent in the pre-war period, in white goods from *nil* to 3·7 per cent, and in coloured goods from 1 per cent to 9·1 per cent. Next to cotton piece-goods, sugar is India's largest import. The quantity imported was 8 per cent higher than in the preceding year. The total quantity of iron and steel imported showed an increase of 19 per cent over the preceding year, but the imports (181,400 tons) were still less than one-fourth of the pre-war quinquennial average. The value of the imports of railway plant and rolling-stock also increased by 70 per cent, but was still 41 per cent below the pre-war average. Imports of kerosene oil decreased to only 12½ million gallons, an amount which was actually below one-fifth of the pre-war imports.

#### EXPORTS

The chief features of the export trade were as follows. The total weight of jute manufactures exported decreased by 5 per cent as compared with the preceding year, while the value of these exports increased on account of higher prices by 23 per cent to Rs. 52 crores (£35 millions)—a record figure. The shipments on Government account during the four years, 1915-16 to 1918-19 amounted to 1,294 million bags and 644 million yards of cloth. The exports of raw jute were 43 per cent above the abnormally low exports of the preceding year but were still 48 per cent below the pre-war normal. With the failure of the monsoon in the middle of the year, the exports of food grains have almost entirely been restricted to countries with considerable Indian populations which are accustomed to rely on India for their food supply. The total exports of food-grains during the year were 3,248,000 tons as against 4,514,000 tons in the preceding year and 4,411,000 tons, the pre-war five yearly normal, truly a remarkable decrease.

#### DIRECTION OF TRADE.

The main feature of the direction of India's trade in 1918-19 was the remarkable advance made by two progressive countries—the United

States and Japan—in our foreign trade. The extent to which these countries have pushed their trade with India is sometimes not realised. The British Empire had 54 per cent of the total trade as compared with 53 per cent in the pre-war quinquennium, while the Allies increased their share to 34 per cent from 26 per cent. The enemy countries had 11 per cent of the total trade before the war and their place has been taken mainly by the Allies. Next to the United Kingdom, Japan held the premier place in the import trade of India, and the second place in the export trade, being surpassed in this respect only by the United States. (Cotton manufactures showed the largest increase and accounted for nearly 51 per cent of the imports as against 38 per cent in the preceding year. Over 238 million yards of piece-goods were imported from Japan as against only 3 million yards in the pre-war period. The total value of the trade with the United States showed an increase of no less than 131 per cent over the pre-war average. Metals (chiefly iron and steel) and mineral oil accounted for nearly a half of the import trade and the exports consisted mainly of raw and manufactured jute, raw hides and skins, and shellac.

#### FRONTIER AND INLAND TRADE

The frontier trade returns show an increase in the trade with the Shan States since the outbreak of war on account of the development of the mines near Nanto. The production of lead in these mines increased from 13,500 tons in 1915 to 19,200 tons in 1918, and of silver from 284,900 ounces to 1,970,600 ounces. In the rail and river-borne trade, there was a decrease of 26 per cent in the quantity of piece-goods exported in the nine months, April to December 1918, as compared with the corresponding period of the previous year. Almost all the principal unporting provinces received smaller quantities of piece-goods.

#### SILVER

A special feature of the year was the large imports of silver on Government account from the United States under the Pittman Act of Congress of 23rd April, 1918. Shipments under the Act began to arrive by the end of May 1918, and the total quantity had arrived by July 1919. The total net imports of the white metal into India in 1918-19 were 122 per

cent of the world's production as against 26 per cent the annual average in the pre-war quinquennium.

#### BALANCE OF TRADE

The most interesting feature of the year is this, the large excess of exports over imports, that is, the large favourable trade balance. The gap between exports and imports of merchandise also was 156 millions. The net balance in favour of India, as estimated by the Director of Statistics after making allowance for the various items, was a new high record—111 million sterling, taking the rate of conversion at Rs 15 to the £. From this should be deducted 111 million sterling representing rupee credits for the Federal Reserve Board in part payment for American silver. It may be mentioned in this connexion that these rupee credits added to the net Council remittances do not exhaust the various channels by which trade could remit funds to India through Government. "The main event in this connexion was," as the Review points out, "the rise in exchange from 1s 5d (fixed on the 29th August 1917) for telegraphic transfers to 1s 6d on the 12th April 1918. The rise to 1s 8d, consequent on the decontrol of the price of silver in New York, did not take place until 13th May 1919." The rise to 1s 10d following a further rise in the price of silver was announced on the 12th, August 1919, and again to 2s on the 16th September 1919.

#### How To Get Trade.

An ounce of fact is worth sometimes a ton of argumentation. A representative of a British industrial firm, a very experienced man, arrived not long ago in one of the most important commercial cities of an important European country. He stayed in the biggest and, socially and commercially, most important hotel in the place, and then he went about to do his business. It took him three weeks to get his bearings, and another three weeks to make necessary arrangements with his customers. This was because he had no guide, says the *Times* Rome correspondent, no competent person to whom to go.

On the other hand, staying permanently at the same hotel, as he discovered, was a socially distinguished and commercially expert German,

placed there to be nothing but a guide for representatives of German firms (Assuredly he was a Political Agent too, but the former was his ostensible work, and he did it well) A German representative arrived in that city, stayed in that hotel, and in an hour's conversation with his resident *confrere* got all the information he required—a process which took the British representative three weeks. And he got specific information which saved further loss of time. For instance, if he travelled in, among other things, tinctacks, he learned not only what people in the city, district, and to a great extent country, wanted tinctacks, but what sort of tinctacks they wanted. If these were slightly shorter than or different from those he carried with him, it was a simple preliminary matter to produce tools and alter some of those he carried to the shape and size required. He then had on the spot ready the exact article demanded. All this was due to the permanent presence in that city of a well-pud, well-found representative of Germany.

The British representative complains that in no country he visits does he find such aid. He has to go and hunt, the German drives straight to a certain hotel, and finds there everything he wants.

#### VALUE OF DIRECTNESS

It would be an exaggeration to say that there are no organizations in existence from which the British representative in question can get information. There is in Rome a Commercial Councillor at the Embassy, with Secretary and staff, efficient if limited, but their functions are more political than those of the resident German mentioned above. There are efficient Chambers of Commerce in Rome, Milan, and other cities, notably the big commercial centre, Genoa. But a Chamber of Commerce is a body with which it is difficult to establish such directness of contact combined with promptness of execution as with a man who lives in a hotel, at which the representative himself too stays.

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#### Angle-Indian Trade

##### ELIMINATION OF MERCHANTS SUGGESTED

The forthcoming visit to Manchester of Dr. H. Stanley Jevons, Professor of Economics in the University of Allahabad, is exciting interest. Dr. Jevons, who was for some time

a resident of Manchester, should have much to say to the cotton trade that will be worth attention. According to an interview published in the *Manchester Guardian*, he desires to promote direct trade between England and inland centres of India. His belief is that this would enable the Indian people to get English cotton goods, among other imported commodities, at a lower rate than at present. It is difficult, however, to see how short of an entire revolution in business methods within India, any real progress could be made in the direction Dr. Jevons thinks desirable. Manchester ships yarn and cloth in bulk to importing houses, European and native, in the principal Indian cities, more particularly coastal cities, including Calcutta, Bombay, Madras and Karachi. The importing houses sell the goods to local merchants and dealers, from whom retailers get their supplies, the importing houses, or the merchants and dealers, also sell to dealers located in the up-country towns and villages, who resell to retailers in the interior. These inland dealers, who, in fact, are the chief distributors of imported as well as of other goods, do much of their buying when they attend the religious festivals in the great centres. They are mostly men in a small way of business, their individual purchases are only moderate in amount, and they are frequently financed by other dealers or by merchants in the leading cities.

#### ELIMINATING CALCUTTA AND BOMBAY

'Direct supplies for the interior would have to go to these up-country dealers, unless special distributing agencies, under new auspices, could be established in the inland towns. New light may be thrown on the subject by Professor Jevons. In the meantime, it would seem that what might be saved by abolishing the intermediary profits and charges of Calcutta, Bombay, and other ports would be lost in the extra risks and expenses of trading with a larger number of customers scattered over a great area, not well supplied with means of rapid communication. It is important that the people of India should be able to purchase British cottons and other things at the lowest possible cost. But it does not at all follow that there would be any definite economy in doing up-country business

direct instead of through existing channels. Some direct trade is already passing between Manchester and Cawnpore and Manchester and Delhi. Where inland towns are able to offer facilities and opportunities for independent consignments, Manchester will doubtless be prepared to transact direct business, but such cases cannot be numerous, or sufficiently numerous to confer appreciable benefits on the Indian consumers.

It is peculiarly interesting and encouraging to Manchester to note that Professor Jevons, after long residence in India and long study of the subject, takes the Manchester view of Indian competition in cottons. He holds that the native industry does not now, and cannot for a long time, offer serious competition with Manchester. The Indian mills continue to produce almost entirely a coarse cloth made from low counts of yarn, and bought by the poorer classes. "One or two" mills, it is true, are beginning to produce the better class of fabrics on which Lancashire mainly depends, but their competition is not an important factor. The question, in the opinion of Professor Jevons, is one of labour—the unskilled native compared with the skilled Lancashire operative—and the use of short staple cotton.

### Leather Trade

Whilst the consumption of leather is admittedly very heavy, supplies are also on a large and steadily increasing scale. American and Australasian shipments are arriving regularly in considerable bulk, says a British Contemporary, thereby substantially augmenting stocks.

In addition, the purchases made by boot manufacturers in July were evidently intended to carry them over the following quiet period, consequently they have not found it necessary to enter the markets except for certain lines of upper stock. The result has been a quieter trade. Values are really unchanged, but there are signs of an easier tendency, as is usually the case when consumers are in a temporarily independent position.

The American market, needless to say, is being very closely watched, and the latest advices of quieter trade and easier conditions in their raw hide market have had the effect of

encouraging the curtailing policy of buyers on this side, especially as it is well known that there are still considerable quantities of sole and upper leather and offal to be delivered.

The public sales of tanned East India goat and sheep skins showed the supply of goat skins was 896,776 skins, comparing with only 654,271 submitted in July last. The very high level of prices then reached, viz., 17s 9d to 32s 9d for Trichinopoly, 6/8lb, firsts, and 1s 6d to 30s 6d. for 7/9lb, seconds, among many other relatively high quotations, and the present "holiday" state of the light leather trade, together with the increased supply, all combined to make progress slower than at the previous sale. Best Madras tonnages were about 1s. a lb. lower, good middle-class descriptions about 2s 6d a lb., and fair and ordinary sorts are about 1s. a lb. under last prices.

The imported hide market has proved quieter, as very little business has been passing indeed.

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### America and Profiteering

The campaign for price reduction is the dominant issue of the day here, writes a New York correspondent in a contemporary. Everywhere in the United States public interest is concentrated on the domestic war declared on profiteering.

A statement has been issued by the Children's Bureau of the United States Department of Labour that 6,000,000 American children are underfed, in New York the Board of Health has reported that numerous poor families have been unable to afford meat, butter, and eggs, Labour leaders predict all-enveloping industrial war to come, and echoes are heard here and there of the threat of Bolshevism growing out of a situation that has brought hunger into existence in a country that has bumper crops and full storehouses.

President Wilson's address to Congress which brought about the uproarious campaign suggested ten principal remedies, which may be summarized thus --

Sales of surplus stocks of food and clothing in the Government's hands

Limit and control of wheat shipments and credits

Forcing into the market stocks hoarded in storage houses.

Prosecution of the most flagrant combiners

Increased appropriations for bureaus to keep the public informed of fair wholesale and retail prices

An amendment to the law providing adequate penalties for profiteering

Extension of the food-control laws' period of operation and its application to more commodities

Laws limiting the time goods may be kept in cold storage

Marking on all packages destined for interstate commerce the price at which they were sold by the producer

Licences and regulations for all corporations engaged in interstate commerce to ensure competitive selling and prevent exorbitant profits

The programme has been subjected to some criticism, but on the whole it has been given abundant support by the Press

### YARN PRICES AND HANDLOOM WEAVING.

For the past three months generally, says a Coimbatore correspondent, a candy of Kom-bodia cotton weighing 520 lbs sells at Rs 250, to Rs 300, inferior varieties being sold at Rs 210 to Rs 250. Taking into consideration the average price, it costs Rs 50 for 1,010 lbs. Deducting 10 % for wastage, there remains 936 lbs to be made into 20s thread. Assuming that 936 lbs of yarn of 20s cost Rs 505, the cost of 1 lb is Rs 0-8-8. After allowing for expenses for 1 lb viz Rs 0-0-9 for fuel, oil, &c, Rs 0-0-9 wages, Rs 0-0-3 for repairing and wear and tear of machinery, Rs 0-0-3 for Managing Agent's commission and Rs 0-1-0 for dividend to shareholders, the cost of 1 lb of yarn of 20s inclusive of expenses is Rs 0-11-8. Thus the cost of 10 lbs of yarn works out to Rs 7-1-8. Even if the mill-owners sell the yarn to the weavers at the actual cost price, the share-holders can get a dividend of clear 10 % and carry 3 % to Reserve Fund.

On the other hand, if the weavers are supplied yarn at the rate of Rs 7-1-8 per bundle they can weave it into cloth in their own hand-looms and sell the cloth at a reasonable price. Thus, the making of yarn out of the cotton available in the cotton growing districts by means of machinery even on a moderate scale enriches the country in more ways than one. It pays the shareholders a fair profit for the investment of their capital in a Joint Stock

concern. It helps the poor weavers by supplying them yarn at a moderate price made in the country instead of the costly material imported from foreign countries. It helps to revive the cottage hand loom weaving industry which is decaying owing to the abnormal prices of foreign yarn ruling in the market and the poverty of the weavers generally who are unable to meet them. It is to be hoped that the existing mill owners will consider the situation and reduce the prices of yarn. For enterprising Indian capitalists, there is yet room for more spinning mills in the Coimbatore District where climatic conditions are favourable, labour is cheap, raw material is available in plenty and the market to sell yarn to weavers is ready hand.

Coimbatore is thus very favourably situated, being the centre of the cotton producing area and can accommodate a few more spinning mills. In the circumstances stated above, there is little doubt but that the mill-owners will find it to their advantage as well as to that of the community in general so to arrange the output of yarn as to enable weavers to get it at prices favourable to them. It may be that the correspondent has not taken into account all the supply schedule. However, those interested in the matter will elucidate the problem and discuss it in all its bearings with particular reference to the development of the hand-loom weaving industry and the spinning mill industry.

## FINANCE.

### Standardizing International Banking.

#### A WORLD-WIDE MOVEMENT INAUGURATED

**W.** IRVING BULLARD, Manager of the Industrial Department of the Merchants National Bank of Boston, is visiting eleven European countries as the representative of the Boston Export Round Table. He has been sent to further the plans conceived by the Round Table to eliminate many of the obstacles which now block the path to the rapid and successful development of international trade. The objective of this trip is to form in more than twenty European cities committees of bankers. In each city one banker from this group will be appointed by Mr. Bullard as advisor to the Boston Export Round Table Committee on Co-operative Relations between Foreign Bankers and Exporters, of which committee Mr. Bullard is chairman.

Simultaneously with the appointment of over twenty committee advisors in Europe and the formation of twenty banking committees in Europe, there will be formed in the United States similar committees and committee advisors in Seattle, Mobile, San Francisco, New Orleans, St. Louis, Chicago, Savannah, Baltimore, Cleveland, Philadelphia and Portland, Maine, in addition to six other cities which are under consideration. John Clausen, Vice-President of the Chemical National Bank of New York, and Vice-Chairman of the Committee on Co-operative Relations, is in charge of the formation of these banking groups and the appointment of committee advisors in the United States.

Mr. Bullard's trip is a natural sequel to the Foreign Banking Conference of the Round Table held January 24, 1919 at the Boston City Club, which was attended by two hundred and fifty selected representatives of banking and exporting interests. At this meeting Walter F. Wyman, Chairman of the Boston Export Round Table, appointed two committees instructed to make a thorough investigation of present day international trade practice, and to carry through the adoption of approved and improved methods.

These committees are known as the Committee on Forms and Practices and the Committee on Co-operative Relations in New England and New York between Banks and Exporters. The former consists of Robert K. Sheppard, Professor Paul T. Cherington of the Graduate School of Business Administration of Harvard University, John Bolinger, Vice-President of the National Shawmut Bank of Boston and W. S. Bankier, Vice-President of the First National Bank of Boston.

The second committee, that on Co-operative Relations between Banks and Exporters, consists of W. Irving Bullard, John Clausen, Vice-President of the Chemical National Bank of New York and H. H. Morse, Export Manager of the Regal Shoe Company of Boston.

These two committees co-operate with one another and with a group of advisors among whom are Thomas W. Pelham, Director of Sales and General Counsel of the Gillette Safety Razor Company, George E. Parmenter, Vice-President of the American Crayon Company, Vincent Gonzales of the Mercantile Bank of the Americas of New York, Harvey E. Golden of Edward Miller & Company, and Arthur S. Hillier of the Waltham Watch Company. In addition to the members, Walter F. Wyman, Chairman of the Boston Export Round Table, attended the meetings of both Committees in New York and Boston.

When the channels for distribution in Europe and the United States are complete and the plans have been perfected and executed for the appointment of similar committees and committee advisors in Latin America, the Far East and Africa, the work of the Committee on Forms and Practices will be brought to international prominence.

The ultimate objects of this important committee can be described as the establishment of a standardized code of banking and international trade practice, and securing its adoption by every civilized nation. This is something which is as necessary to the really successful development of international trade

as the League of Nations aims to be in the administration of world politics. Its effect will be to make it as easy for an American manufacturer to sell in Europe or Asia as in his neighboring state in this country. Delays due to differences in practice among the various countries will be eliminated. Misunderstandings because of these delays will be done away with and international trade will be carried on in a manner accepted and approved by all the nations involved. It is hoped and believed that this movement will eventually give to international trade the greatest stimulus it has had for years.

The next forward step, following the organization of the committee, was a meeting of the Committee on Co-operative Relations held May 13 at the Chemical National Bank in New York City. At the May 13 meeting the decision was reached to send Mr. Bullard abroad for the purpose of inviting foreign banks to affiliate with the Round Table in overcoming international trade obstacles, and through Mr. Clausen to perfect relations with foreign banking interests in Seattle, Mobile, San Francisco, New Orleans, St. Louis, Chicago, Savannah, Baltimore, Philadelphia, Portland, Maine and other cities.

Formal authorization was given Mr. Bullard in the following letter:

"As chairman of the Committee on Co-operative Relations between banks interested in and merchants engaged in foreign trade, appointed at the Foreign Banking Conference of the Boston Export Round Table on January 24, 1919, you are directed to invite such bankers abroad as you may select to participate in and to secure the benefits of its deliberations.

The main function of your committee is to eliminate absolutely all artificial obstacles to the free flow of international commerce and banking."

While your committee is examining the best methods of bringing about a closer relationship between banks and those engaged in foreign trade and inviting the participation of international bankers, the Committee on Forms and Practices is preparing a concrete set of forms which will further the work of our committee and which it seems inevitable will be generally accepted because all parties interested in international commercial exchange will have been consulted and the final forms will represent the best judgment of those engaged in foreign trade.

Recognizing our international obligation, we instruct you to expand the work of the committee through affiliation with European bankers and you are authorized to make such appointments as advisors in your judgment will best further the interests of international banking and commerce.

This letter was signed by Mr. Wyman as Chairman of the Boston Export Round Table, by Mr. Morse as Secretary and by Mr. Bullard and Mr. Clausen as Chairman and Vice Chairman, respectively, of the Committee on Co-operative Relations.

One of the most significant facts in connection with this movement by the Boston Export Round Table is in its announced recognition of the international character of its obligations. Even some of the more experienced exporters in this country have looked askance at the idea of sharing with other nations the most exhaustive investigations which have been made in the Harvard School of Business Administration under the direction of Professor Cherrington for the Committee on Banking Forms and Practices, and which have been conducted in other cities under the direction of other members of the Boston Export Round Table. But these investigations and the forms and practices of greatest importance will be shared freely.

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#### IMPORTATION OF GOLD COINAGE.

A Press Communique states that intimation has been received from the Colonial Secretary, Colombo, that from and after the 17th October 1919, importation into Ceylon of British gold coinage is prohibited except in cases where

a licence has been issued by the Principal Collector of Customs, Colombo. The penalty for a breach of the regulation is six months' imprisonment or a fine of Rs 1,500 or both.



## TRANSPORT AND POWER.

### Engineering Education.

#### PROCEEDINGS OF THE SADDLER COMMISSION

The question of higher engineering education occupies 82 pages of the voluminous report of the Calcutta University Commission, which has just reached this country. Many of the questions discussed are of general professional interest, and though the recommendations relate primarily to Bengal, they have a close relation to conditions in other parts of India, says the *Punjab Engineering Supplement*.

The report may be said to dispose of the proposal to centralize higher engineering instruction for the whole of India into a single institution. It emphatically supports the recommendation of the Public Service Commission and of the P. W. D. Reorganization Committee that the four existing colleges—Madras, Bombay, Rangoon and Sibpur—should be maintained. Sketching the history of the last-named institution, which was founded in 1880 on the banks of the Hooghly, some five miles from Calcutta, Sir Michael Sadler and his colleagues give ample proof that the situation as regards the development of higher engineering education in Bengal is in a singularly tangled condition. In view of the improved sanitary state of the locality, as attested in technical reports, it is held that there is now no reason for the removal of the college, from Sibpur, and that it should be developed on the existing site.

A still more important conclusion is that the college is capable under existing arrangements of giving the training necessary for turning out competent civil engineers of university rank, and that no fundamental changes are required in this department, though there is evidence that the practical training which follows the college teaching is insufficient. Underlying the recommendations is the principle that the college should gradually devote itself wholly to higher or university work and that the lower or technical classes now accommodated in it should be provided for elsewhere. The Commission think that in view of the existing state of secondary education it would be

premature to lower the maximum age of admission from 21 to 19, and to reduce the college course from four to three years as the P. W. D. Reorganization Commission proposed. They welcome the arrangements being made for specialists courses in civil engineering to be conducted by visiting teachers.

#### MECHANICAL ENGINEERING

The problem of training in mechanical engineering in Bengal differs essentially from the corresponding problem in this country, "because of the averseness of so many high caste Bengalis to use their hands, and because, unlike the English youth who wishes to become a mechanical engineer and who in accordance with universal tradition does the work of an ordinary workman and accepts the pay of an ordinary apprentice during his training, the average Bengali youth regards such work and such pay as beneath his dignity, and is therefore unable to acquire the practical experience necessary to make a successful mechanical engineer." It was on this ground that a sub-committee of Sibpur College lately reported that there was no demand which would justify the local training of mechanical engineers of the university type. But this is not the present view of the principal of the staff. They point to the new situation created by the war, the expansion of industries due to military demands, the difficulty of obtaining engineers from Europe and the probability that the difficulty will not be diminished now that peace has come. The industries need the men and need them badly. They are perfectly willing and anxious to engage competent men quite irrespective of their nationality. A competent Indian, who can live on a lower scale of pay than a European, will have a great advantage. We must, therefore, forge ahead, and that without delay."

A like view was taken by the Industrial Commission, who proposed a plan based on the recommendations for engineering education of the Committee of the Institution of Civil Engineers in 1905, though with modifications. The two Commissions agree not only that there should be training for subordinates, but that the highest training in mechanical engineering



should be given at Sibpur, to meet the growing needs of Indian industries. The Sadler Commission see no reason why a university degree should not be awarded in mechanical engineering to students at the college. But every student should pass either before, during, or after his college course through a period of practical training extending over at least three years, and not different or less stringent in character for those who take the practical training after the college course than for those who take it before. If experience shows that direct entry to the college without previous training in the workshop leads to unsatisfactory results this alternative should be abandoned.

#### ELECTRICAL AND MINING.

Attention is directed to the views of the Industrial Commission as to the small scope at present in electrical engineering. The development of the electrical department of Sibpur, the present report says, should be referred to its future governing body. The courses of study in mining should be maintained and extended with special reference to the mining of metaliferous ores and various non-metallic minerals other than coal, and to oil mining. In view of the absence of organized provision for training in architecture, it is recommended that a scheme of training, leading up to a degree, should be organized in Calcutta. This could probably best be done at Sibpur, possibly with the co-operation of the School of Art.

#### COLLEGE ADMINISTRATION

Sibpur is at present a Government college, and the governing body has powers rather greater than those of the governing bodies of other State colleges. The Commission do not concur in the proposal of members of the staff that the connection between the college and the university, which bestows the degree, should be severed. Attention is drawn to the weight of evidence heard on all hands in support of the view that the universities should take part in higher technological training. The Commission propose that Sibpur should become a constituent college of the university, with a constitution similar to that proposed for the Presidency College. They regard it as essential for its welfare that it should be brought into close touch with the recently established

Indian Institute of Engineers and with the great engineering firms in Calcutta, and that these should be interested in its management. With this end in view they propose a governing body to include representatives of Government, of the teaching body of the college, of the engineering profession and of the industrial interests concerned. It should receive a stated annual allocation from Government, and should, subject to audit, be allowed wide latitude in expending this grant and in obtaining funds from private sources, especially from the industrial interests served by the college. After detailing the relations which should subsist between the college and the university, the report expresses confidence that harmonious working would ensue and that the connection will be beneficial to both—"to the college because of the prestige which it will gain from the opportunities offered to its students to obtain university degrees and because of the contact of its teachers with teachers in the allied subjects of chemistry, physics, geology and mathematics, to the university, reciprocally, because of the variety given to its studies and of the breadth of view gained in discussions affecting university policy as a whole by the representations of engineering interests."

#### Two Great Engineering Projects.

##### SUTLEJ DAM AND HYDRO-ELECTRIC SCHEME

His Honour the Lieutenant-Governor of the Punjab recently left Simla for a tour down the Sutlej from Bilaspur to Rupar to consider personally at site two important schemes now under consideration by the Punjab Government (says the *Civil and Military Gazette*). These are the Sutlej Dam Project with its reservoir and dam at Bhakra and the Sutlej Hydro-Electric Scheme with the offtake of the Power Channel at Oel, some 16 miles above Bhakra.

The Sutlej Dam Project is in four parts —

- (a) Bhakra Dam
- (b) Upper Sirhind Canal
- (c) Lower Sirhind Canal.
- (d) Extensions from the Western Jumna Canal

### THE HIGHEST DAM IN THE WORLD

The dam will be built across the Sutlej River in the Bhakra Gorge, some 40 miles above Rupar, the headworks of the existing Sirhind Canal. It will be 395 feet high from foundation level to roadway, and in that respect will be the highest dam in the world. The present highest is the Arrowrock Dam of the Boise Series in Idaho, California, which has a final height of 348 feet. The depth of water in front of the Bhakra Dam will be about 375 feet against 240 feet in the Arrowrock—the latter having to go down 98 feet in the foundations before suitable rock was found—in the former good rock is found at once. The report of the Geological expert, who inspected the site before the Project was worked up, is exceedingly favourable. The length of the top of the dam will be 1,015 feet. The water to be stored by the dam in the month of August annually will be 2½ million foot acres.

For the Upper Sirhind Canal, the existing Head Regulator of the present Sirhind Canal will be enlarged and an extension made to the Susa Branch of the Western Jumna Canal, thereby affording irrigation to the dry tract between Patiala and Kathul. Water of the Western Jumna series will thus be set free in the Susa Branch for utilisation in extensions elsewhere.

### 2 000,000 ACRES NEW IRRIGATION

For the Lower Sirhind Canal new head-works are proposed to be built on the Sutlej at a place two miles from the battle field of Ahwal and some 12 miles below the Phillour Railway Bridge. The canal from these head-works will cut across some of the existing irrigation of the present Sirhind Canal which it will absorb, while new channels will take water into the famine tracts of the Susa Tahsil and into the deserts of Bikani. The water set free in the Susa Branch by reason of its being linked to the proposed Upper Sirhind Canal can then be used within the limits of the Western Jumna Canal for extensions to the dry tracts of Tosham, Pali Rahana and Beri Balaut which have long needed water, also there will be an increase of intensity in other parts of the existing irrigation. The total new irrigation anticipated is 2,820,342 acres. Thus

enormous area can only be affected by first storing the surplus water of the monsoon months at enormous expense. Such water is therefore extremely valuable, and to avoid waste and losses by absorption in earthen channels, it is proposed to follow American practice and carry the water in concrete lined channels—thus not only conserving the water, but reducing water-logging conditions. The whole scheme in magnitude and boldness of conception bids fair to rival the Tidal Canal Project of which the Punjab is so justifiably proud.

### THE HYDRO-ELECTRIC SCHEME

The Sutlej Hydro Electric Scheme was referred to in considerable detail at the Punjab Engineering Congress of 1919 in a paper on "A Project for providing the Punjab with a cheap supply of Electric Power" by Mr. F. L. Milne, A. M. E. E., Electrical Engineer, Simla. The Sutlej river takes a big hair pin bend from Oel to Kathpore. The distance round through the Bhakra Gorge is some 40 miles, while across it is only some seven miles. But a range of mountains, the top of which is 3,400 feet above sea level, intervenes. Therefore to get across this gap a tunnel 10,500 feet long is needed, ending in an open cut and forchay. From this forchay steel pipes can be laid to the power house 3½ miles away. After deducting losses of head due to friction in the pipes 300 ft working head remains for the turbines. With a minimum supply in the winter of 2,700 cubic feet per second, it is estimated that 60,000 kilowatts can be generated. If, however, the Bhakra Dam is built the requirements of the caps below will entail that never less than 7,500 cubic feet per second must be passed down so that 150,000 kilowatts will probably be the ultimate possibility of this scheme. The power generated if the scheme develops will be used to electrify the Simla Kalka Railway, provide lights and fans at Ambala and probably power to the mills there, light to the hill stations of Kasauli, Dagshai and Subathu, power possibly for pumping from tubewells in tracts of Patiala and Nabha not served by canals and for electrical extraction of metals from ores in the neighbouring Himalayas. There may also be possibilities of extension to Delhi, Amritsar and Lahore.

## MOTOR TOPICS.

### The Bombay Motor Trade Conference.

**A**T a meeting of the Motor Trade Association (Western India Section) it appears that most of the discussion concerned tyres, but it is believed that the cars will eventually be reached *via* the spokes and hubs. This is not written in any spirit of sarcasm being, as we are, fully conscious of the advantages of an association to motor traders as a body, and we welcome the new association very heartily. There is, however, a rather uneasy feeling in some quarters that behind the Association there lies an attempt to squeeze out certain firms who do not happen to be acceptable to some of their trade competitors. Our information, which is from an authoritative source, and not in any way connected with or interested in the matter, is that one of the biggest firms of tyre manufacturers in the world has got to "go." Undoubtedly, the motor traders of Western India know their own business best but one hardly expects a body of keen business men to permit itself to be made the chopping block for some equally keen tyre manufacturers who are experienced enough to be able to take care of themselves. Motor traders in Bombay should remember that if there is a war of price-cutting in tyres, discounts to dealers will be greatly reduced and the only person who will gain anything at all will be the private motorist. And he, in these days of inflated prices, will be profoundly thankful for any benefits which may accrue to him as a result of other people's folly.

### THE MOTORISTS' MEETING.

We are informed that the inaugural meeting of the Bombay Automobile Association will be held at the Taj Mahal Hotel, shortly. It is intended that the meeting shall be a quite informal one in order to promote free discussion upon any subject which will tend to unite motorists into a strongly organised body. The proposed Association was originally suggested says the Supplement, the *Times of India*, and we are extremely interested in its welfare and progress, possibly, therefore, we may be permitted to express the opinion that the initial programme should not be too ambitious. Bodies like the Royal Automobile

Club and the Automobile Association and Motor Union of Great Britain were not formed in a day, and they did not attain their present authoritative position at one leap. Similarly, then, the proposed Bombay Association will find plenty of scope for its activities in purely local affairs for the first few months, and then when it has found its feet it can forge ahead as fast as it likes. This end will perhaps best be achieved by fixing the subscription as low as possible, say ten or fifteen rupees per annum, for all who join within a reasonable time, with a substantial entrance fee from those who sit on the fence until all the hard work is done and the Association is on a sound footing.

\* \* \*

### Obviating Glare from Headlights

Practically every state of the United States of America has certain laws pertaining to automobile headlights. Years ago, before such laws had been introduced, numerous accidents occurred at night because of the blinding glare of passing cars. As a protection to all motorists, therefore, the various States have long since introduced laws which determine how much glare is permissible in any automobile headlight.

A simple test for automobile headlights has been in operation for some little time in St. Louis, and has set a standard for such lamps. The difficulty in determining what constitutes a glaring light led to the development of this device, which is of simple construction and equally simple operation. It consists of a box about five feet (1½ meters) high, with a slot in the front which admits rays of light from the auto lamps. They fall upon a curtain suspended within the box, and at the same time the light from another lamp placed back of the curtain falls upon its surface. The latter lamp is of the correct brilliancy, having been selected because it was considered neither too glaring nor too dim. Of course, this lamp will change with the rules of various places.

Through peep holes at the side of the cabinet the intensity of the light upon the test curtain may be observed, and if the automobile lamp throws a brighter ray than

that of the standard lamp, it must be reduced until the bars are of equal power, and if it is too dim, it must be brought up to the standard.

The test requires only a few minutes' time, and can be carried out in broad daylight.

#### IS THE LIGHT CAR COMING BACK?

From England and France come reports of the light automobiles which are now entering quantity production, as quantity production is understood in those countries. These light cars appear to be a normal development of the motor-cycle. True, they are four-wheeled vehicles and have the general lines of an automobile, even if much smaller and finer in appearance, but the power plant and general internal mechanism has much which suggests the motor-cycle. How these light cars will fare remains to be seen. In Europe, with its splendid roads and careful drivers, the light car may thrive. However, it was introduced in America some six years ago, under the name of the cyclo-car. It lasted but a year or two and then disappeared from the market and from American highways, for the reason that the light construction could not cope with the rugged travelling conditions in the United States.

#### A TIRE VALVE THAT GIVES WARNING

To inflate tires to the proper degree is one of the essentials of careful and economical motoring. In order to simplify the inflation of tires, an American specialty concern has recently placed on the market a unique tire valve which automatically whistles when the desired pressure is attained in the tire. The valve is set for the pressure called for by the tire manufacturer. The pump hose is connected in the usual manner and the pumping operation carried out. When the required pressure is reached the valve whistles.

#### MOTOR TRUCK MOVING VANS

There is very little moving done these days in leading American cities that is not handled by motor truck vans. Not only is the motor truck van capable of handling a greater and heavier load than the horse-drawn vehicle which it has replaced, but it covers the route in a far quicker time. As for expense, the experience of hundreds upon hundreds of cartage companies is that in the long run the motor truck scores a marked economy over the horse-drawn vehicle.

#### Instructions to Battery Users.

A writer in the *Indian Motoring* gives the following condensed instructions in the form of "Don'ts" which should prove invaluable to Motor Car Battery User, in obtaining the best possible results and maximum service from their batteries.

Don't charge for too long a period or at too high a rate. Reduce the current when the cells begin to gas. Never exceed the rates given in the instructions.

Don't charge during the hottest part of the day. Reduce the current if the temperature approaches 110 deg F, and if necessary, stop the charge until the cells cool down.

Don't stop the charge too soon. See that all the cells are gassing before stopping.

Don't run the battery below 1.7 volts per cell.

Don't allow the battery to stand fully-discharged. Re-charge immediately.

Don't let the acid level fall below the tops of the plates.

Don't use unsuitable water for replacing evaporation. Use only distilled water and fill up just before commencing to charge.

Don't allow the sediment to touch the bottom edges of the plates.

Don't allow the interior of the battery compartment to become dirty and acid-sodden.

Don't allow spilt acid to remain lying about. Wipe off immediately with waste damped with liquid ammonia.

Don't expose terminals or connectors to the acid spray, as corrosion will be set up. Keep all metal parts protected with vaseline or grease.

Don't allow metal, such as tools to lie about near the battery and so avoid danger of short circuits.

Don't take naked lights near the battery especially when charging.

Don't add acid to the cells except on the advice of a battery expert.

### Items of Interest to the Importer

Judging from recent announcements of both car and truck manufacturers, it is evident that there is a general upward trend in prices. Increases have already been noted of from £50 to £300 since the first of July. There are few exceptions to the general tendency to advance prices in all classes of motor trucks and passenger cars. Hence there is little to be gained by waiting, for, to all appearances, prices will continue to climb higher rather than descend to pre-war levels.

#### THE WORLD'S LARGEST MOTOR TRANSPORT

A total of 122,128 passenger cars, ambulances, trucks, motorcycles, bicycles and trailers from the motor transport strength of the United States Army at home, with 121,139 in France, according to a recent statement by Brigadier-General C. B. Drake. Of these, passenger cars in the United States total 9,992, in France 9,809, motor trucks in the United States 57,712, in France 51,781, and motorcycles in the United States 16,712, in France 22,802, ambulances in United States 5,167, in France 7,089, trailers in the United States 23,513, in France 5,791. Under the plans arranged for an army of 500,000 men on a peace basis the War Department will require 4,192 passenger cars, 20,973 motor trucks, 10,170 motorcycles, and 3,591 trailers. The trucks will comprise 1-, 1½-, 3-, and 5-ton sizes, in addition to the four-wheel drive types.

#### A British Ford

A British contemporary recently published details of a concern which has plans for putting on the market within a short time a large quantity of cars, stated to be 150,000 built on Ford lines. It is proposed to import puts of parts from America, and our contemporary understands that a sufficient number of puts for an assembly of 100,000 cars is already in the country, but that statement has not yet been verified. The concern which is taking up the production is F. J. Wright and Co., Ltd., of Cagle Hill Works, Ramsgate, and the Managing Director is stated to have formerly been an active member of the Ford Co. in their works at Detroit. The weight of the car will be approximately 12 cwt., and the price in England will, it is stated, be £185, plus £6 10s. for delivery charge. An unusual feature is free

insurance covering theft, fire third-party risk, damage, &c., which is given with the car for 12 months.

#### Indian Cars for Australia

The correspondent of *The Times* at Sydney reports that Major Goddard, the Board of Trade envoy after careful inquiries, has expressed the conviction that Australia offers a vast outlet for English motor-cars, as well as for lorries and for commercial tractors. He believes that it would be possible to manufacture the vehicles in India and sell them in Australia at a price of £300 (while cars made in England would be sold at £450), which would permit them to compete with American cars. The Federal Government has been asked to allow at least a 25 per cent preference duty to British cars to allow them to compete with foreign makes.

#### Civil Aviation

The United States has shown that although the pioneer efforts of mail carrying aeroplanes may send up the fee per letter, the cost speedily drops as the work extends. At the commencement the United States daily air post charged 2½c a letter, but within six months the fee was reduced to 2c.

An aerial mail service, inaugurated on an extensive scale should prove profitable to the Post Office. Properly organized it would entail in the initial stage the instalment of emergency landing grounds. The possibilities of small flying boats for postal work should not be overlooked. Machines of this type could penetrate to many isolated coast towns, where the postal services are somewhat primitive. Many of the large towns are provided with natural "landing" facilities in the form of waterways. Liverpool, Portsmouth, Hull, and Bristol are a few examples. Flying boats visiting these towns would not require the instalment of expensive aerodromes, for they could alight on their natural element—water.

Efforts in the direction of organizing Continental and inter-Empire airways are likely to facilitate the progress of world-wide aerial mail services. In parts where distances are large and railways poor there is wide scope — *The Times Trade Supplement.*

## NEWS AND NOTES.

The following table shows the wheat prices guaranteed to producers by the various Governments for the year 1919. The unit is the bushel, and all prices have been reduced to dollars —

Algiers	2 16	Holland	\$4 3
Argentina	1 10	Italy	3 33
Australia	1 44	Morocco	1 3
Austria	1	Portugal	3 85
Brazil	1	Spain	3 4
Belgium	1 15	Sweden	2 90
Canada	2 1	Switzerland	3 3
Denmark	1 07	Tunis	3 3
Egypt	1 1	United Kingdom	2 8
France	1 1	United States	2 34
Germany	10		

The Ceylon Department of Agriculture and others interested in the matter are giving close attention to the cultivation of the castor oil plant outside the grown areas, in view of the increased demand for castor oil. At a recent meeting of the Ceylon Chamber of Agriculture at Colombo, members had the matter under consideration and proposals were adopted for facilitating the introduction of machinery for crushing the seeds and purifying the oil. Experiments carried out by means of an ordinary village press produced 20 per cent of oil obtained by the cold drawn process. With a larger press the yield was 33 per cent, so that the prospects with better machinery are promising.

Figures compiled by a statistician of the National City Bank of New York show that at the end of the war the paper money issued by 15 of the principal countries of the world amounted to \$111,000,000,000 being an increase of \$2,000,000,000 since August, 1914. This paper money is said to be \$20,000,000 more in face value than the gold and silver turned out by all the mines of the world in the 127 years since the discovery of America. Apart from this amount there are now in circulation \$20,000,000,000 worth of bonds and other forms of national obligations issued by the same Governments during the last five years. The National Debt of the world has advanced, according to the same authority, from \$10,000,000,000 at the beginning of the war to \$52,500,000,000 at its close.

A further development of American industrial banking is represented by the formation of the Textile Banking Company in New York. It has a paid-up capital and surplus of \$2,500,000. The Guaranty Trust Company and the Liberty National Bank are interested in the new concern, which will act exclusively as a commercial bank for mills engaged in the textile industry. It will finance purchases of new materials and other requirements, and will render the same banking facilities to the trade as it has been in the habit of receiving from factors and commission houses for many years past. Another American financial institution has been formed under much the same auspices. It is entitled the Mexican International Corporation and its purpose is to assist in the exploitation of the resources of Mexico by the promotion of financing and under-writing syndicates for Mexican businesses, and its capital is \$1,125,000, of which \$1,000,000 is in seven per cent preferred stock.

All the banking circles to hand from the United States show how the question of exchange is the dominating thought in American financial circles at the present time. The following table shows what a serious hindrance to the export trade of the United States is the discount on foreign currencies —

	Unit	Ex- change rate in U. S. Dollar	Approx- imate Percent Discount	Dis- count on par value
German	Mark	15	07	4
Italy	Lira	1000	11 1/2	3 1/2
Belgium	Franc	100	11	30
France	do	100	13 0	30
England	Pound	100	11 1/2	13
Switzerland	Franc	100	17	2 1/2
Holland	Guilder	100	3 75	6
Denmark	Krone	100	22	17
Norway	do	100	37 1/2	11
Sweden	do	200	24 1/2	7 1/2
Spain	Peseta	100	130	par
Argentina	Peso	100	96 1/2	9
Japan	Yen	100	50 60	19 1/10

This table may be regarded as a fair test of the gold value of the different currencies, for the United States is the only country where gold can be freely obtained. Therefore, her

currency may be regarded as the equivalent of gold, and the discount on other currencies as indicating their relative value to gold

\* \* \*

The Canadian Board of Commerce, which will act under the Combine and Fair Prices Act, has now been constituted and will shortly commence its duties. The board has been given power to institute investigations on its own initiative or at the request of responsible parties who may bring complaints to its notice. A statement issued by the board announces that "all the records made under the previously prevailing investigation system will be secured and taken over by the board, and, in addition, as soon as the board can make the arrangements, and before the lapse of many weeks, the full board will, in joint session, visit all the principal cities of Canada and conduct therein open courts of inquiry into cost and price conditions and the means of remedying these conditions. When the intended sittings are held, they will be open to all who wish to complain or testify, or defend allegations made. No formality whatever, nor any notice, will be required. Afterwards from the information on hand and to be gained while on its itinerary the board will take such action as to it should seem proper by way of general remedy. Special remedies will be applied as the occasion for the application arises."

\* \* \*

For some time past steps have been taken to organize an exhibition of the industries, the inventions, products, and raw materials of the British Empire to be held in 1921. A large and influential meeting was recently held in London, attended by the Premier, High Commissioners, and representatives of Oversea Dependencies, and others interested in the scheme. A resolution was passed that an exhibition on the above lines would be the best means of firmly binding together the peoples of the British Empire, and of restoring its commercial and financial supremacy to its original position. It has been decided that the exhibition shall be held under the auspices of the British Government, the Premier being President of the Council, Mr. Bonar Law Vice-President, and Mr. Walter Long President of the administrative committee. Extensive preparations are

being made throughout the Empire, and, to ensure complete representation, local committees have been formed in most of the large centres of industry. No exhibition previously held has had the advantage of such influential support. The British Empire Exhibition will offer an opportunity of demonstrating the magnitude of British resources at the time when such a demonstration is most needed.

\* \* \*

In their report for the year 1918, the Committee of the City of Manchester Art Gallery say: "At the present moment a movement is on foot, supported by the Minister of Education and the Board of Trade, for enabling an Industrial Art Committee of the Royal Society of Arts to co-operate with the Arts and Crafts Society, the Design and Industries Association and Consultative Committees of the London County Council, with the object of raising and maintaining the standard of design and workmanship in industrial art produced by British craftsmen and manufacturers, and of stimulating the demand for works of real excellence. Manchester, being as it is the centre of a large group of manufacturing towns, should see that it takes a leading part in this movement, for there can be no doubt that for the healthy development of industry few things are more necessary than that it should draw constant inspiration from the best designers and artists. Successful industry is, in fact, and always must be, intimately bound up with art and the provision of an art gallery in which examples of the best obtainable work in the main branches of the industry can be seen and studied by the people is, in the opinion of the Art Gallery Committee, a practical movement for stimulating trade and for giving art its rightful place in the life of the community."

\* \* \*

In the course of an address to the Alberta Industrial Congress held at Calgary recently Mr. J. E. Walsh, the General Manager of the Canadian Manufacturers' Association, gave some remarkable details illustrating the development of manufacturing in Western Canada. The following table shows the increased number of establishments and the capital employed in the three Prairie Provinces—Manitoba, Saskatchewan, and Alberta—from 1900 to 1917—

Year	No of Establishments	Capital
1900	429	£ 2,79,561
1905	511	5,036,133
1910	802	5,141,847
1915	1,551	15,811,510
1917	4,052	17,435,100

"These figures," said Mr Walsh, "show what a remarkable increase took place in the last two years accounted for in the table." Mr Walsh also gave some particulars about the Canadian Manufacturers' Association, and said that in the period from 1900 to 1917 the following increases had taken place:—

Establishments	135 per cent
Capital	520 per cent
Number of employees on salary	110 per cent
Salaries paid	305 per cent
Number of employees on wages	100 per cent
Wages paid	110 per cent
Value of product	526 per cent

In 1918 the membership of the Association was 3,550.

There is general agreement on the need for further forest research. Several associations interested in Germany in the paper and allied industries some time ago urged the establishment of an Institute for Cellulose Research. This proposal has recently been elaborated into a larger one for the establishment of a Holzforschungs Institut (Wood Research Institute), to include not only cellulose, but all forest products, probably on the lines of the U.S.A. Forest Products Laboratory at Madison, which did such valuable work during the war. Foremost among this valuable work was the development of a process for manufacturing power alcohol from sawdust and wood waste, also the manufacture of explosives from wood pulp in place of cotton. Other products include lucifers and pyroxylin and, of course, resin, turpentine, &c. Great attention has been given in Germany to the production of synthetic resin during the last year or two, and it is now strongly urged that the same degree of attention should be directed to the exploitation of the natural product. Assuming a turpentine content of 2 per cent in the soft woods of Austria, it is estimated by Mangold that 250,000 tons of resin could be obtained from the forests of Austro-Hungary and

Germany 800,000 tons of crude turpentine could be produced. In 1913 Germany imported 96,000 tons of resin from France and the U.S.A. Reference may also be made to another product of particular importance to Germany at present, and this is cedar-nut oil, a fatty oil obtained from the nuts of the Siberian cedar. Kerber states that the kernels of this nut contain 59.9 per cent of oil of first-class edible quality and that the collection of the nuts in the vast forests of North Russia presents no difficulties.

\* \* \*

The world's supplies of sugar, say the Royal Commission, are so short that it will be necessary to employ a balanced system of rationing which will enable retailers to supply their customers with the authorized ration and to build up reserve stocks to meet any temporary delay in transport that may arise. As sugar is and will for some time remain a very scarce, it is only by the exercise of the strictest economy that it can be hoped to prevent a further rise in price in the world's markets.

\*

The ability of the modern car to perform the duties of an express train has been well proved by the long distance journey of the King and Queen from Pilsaard to Buckingham Palace, a distance of 550 miles, which their Majesties were compelled to undertake last week owing to the railway strike. The 550 miles journey was accomplished in two stages of approximately 250 and 300 miles, the car being a six cylinder Daimler, a make which has enjoyed the Royal patronage since the early days of motoring. The first stage of the journey was made on October 3rd, from Balmora to Lowther Castle, Penrith, the seat of the Earl of Lonsdale, where the night was spent the route being through Braconer, Perth, Stirling, and Lanark. An early start was made next morning at eight o'clock, and a straight through run of over 300 miles was accomplished to London, which was reached the same night. Mr Oscar Humphrey, the King's chauffeur, was at the wheel throughout this long journey.



### Motor Scooter as a Trade Vehicle

The advent of the motor scooter into the domain of commerce as distinct from pleasure is promised shortly. An American firm having company in London proposed to employ twenty of them to carry sandwichmen advertising their wares in the London streets.

### Cotton Seed Oil.

In Britain the oil trade needs not less than 50,000 tons of cotton seed per month. Only 20,000 tons were imported in July. "It is probable that only from India can we hope to obtain enough cotton seed to place the oil trade in its old position. Little has yet been done to stimulate the import of cotton seed from India," says a contemporary.

We are waiting for the stimulant. Meantime we note that at Hull, the centre of the oil trade in Britain, the price of cotton seed oil is 98 shillings for crude Egyptian, and 96.90 shillings for crude Bombay. It would be interesting to know just why Bombay oil sells at a lower price than Egyptian, and to know if it is possible to improve the quality and raise the price.

### Alcohol in the United States

Apparently in the United States all distilleries were on the same footing whether they produced alcohol for drinking purposes or industrial. Now a Bill has been introduced into Congress for the purpose of relieving distillers of industrial alcohol of the restrictions which have made production cost so high. Alcohol distilleries will be licensed and bonded under an approved plan and denatured alcohol sold tax free from domestic and foreign use. Alcohol without denaturants may be withdrawn tax free for the use of University and Research Laboratories and for hospitals conducted without profits. It is intended that there shall be ample supply of suitable alcohol for the development of dyes, pharmaceuticals, new fuels and for scientific work generally. It is to be hoped that the Government of India will consider the terms of this Bill carefully and will

take suggestions from it and use them to make alcohol accessible for industrial and scientific purposes to the utmost extent in India.

### BRITISH SOAP IN INDIA

The British soap industry is one of the best organised in the world, and its products have a unique reputation. The Chamber of Commerce (London) Journal thinks that British trade with India has possibly reached its highest point and that downward tendency may set in. The production of soap in India is on the increase. The West Coast is well favoured as regards the supply of suitable oils. In spite of the increased local manufacture the Indian market is not expected to be of less value to the British soap exporter, because the use of the better qualities of soap is increasing. The Indian market for imported soap is still worth about three-quarters of a million pounds sterling annually, the bulk of which is supplied by the United Kingdom. The exports of toilet soaps from the United States to India last year were in the neighbourhood of £20,000 in value.

Officials at Marconi House promise some interesting developments in the near future. It is stated that wireless will do anything that can be done by ordinary telegraphy. Any photograph which can be sent by wire can be sent by wireless as well. The method being perfected is the transposition of a photograph on to a metal plate. The electric transmissions will be made according to the rise or fall of the metal contours. It will be possible very shortly, it is said, for a wireless message to be transmitted direct from the receiver to a working type writer, which will reprint the message at the rate of 100 words per minute.

It is stated that a British firm of Portland Cement Manufacturers has booked orders for several thousand casks of cement for delivery to India on account of the India office, and are also sending large quantities to the Dutch East Indies for Dutch Government work.

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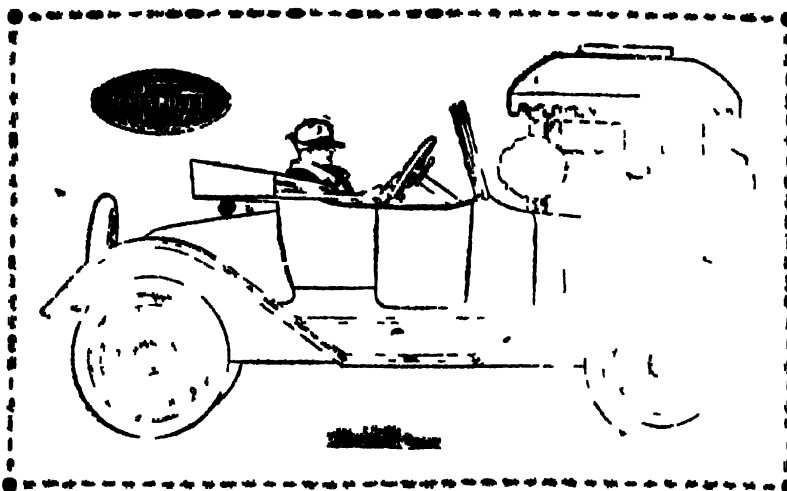
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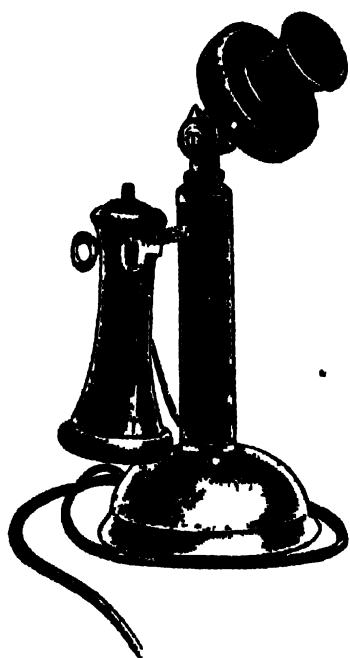
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**AUTHORISED CAPITAL Rs 15,00,00,000 (Rupees Fifteen Crores)**

(Divided into 1,50,00,000 Ordinary Shares of Rs 10 each)

Issue of 1,00,00,000 Shares of Rs 10 each (Rupees Ten Crores)

**Payable as follows — Rs 18 per Share on Application** **Rs 2 per Share on Allotment**

No further calls will be made until the expiration of a period of two years from the date of Registration of the Company, and no call shall exceed **Rs 18 per Share per annum**

The Directors will proceed to allotment of Share of the nominal value of **Rupees one Crore** are subscribed. The initial minimum Cash Capital which the Company must possess before it can proceed to allotment or commence business will therefore be the sum of **Rupees Thirty five Lacs** (Rs 35,00,000)

No Shares will be issued otherwise than for cash

## Directors

- |  |  |
|--|--|
| 1. Prince VICTOR N. NARAYAN of Cooh Behar (Chairman)   | 10. LALJI GOVINDJI ESQ. Merchant and Director of the Bombay Merchant Bank Ltd. Calcutta                  |
| 2. R. L. Shrinani SETHS K. H. A. FARNANI ESQ. Chairman of Mining, Director of Karam Industrial Bank Ltd., Zamin and Lunker (Vice Chairman) | 11. MACANAL COCHIAJI ESQ. of Messrs M. C. Chandra and Co. Merchants, Bombay                              |
| 3. K. F. KUNTA NATH SEN Bahadur zemindar Berham pore, Bengal   | 12. P. K. CHOSTI ESQ. Merchant and Director of the Kamakrishna Mill Co. Ltd. of Ahmedabad                |
| 4. Dewan Bahadur Dr. HIRAJI BASU ESQ. ESQ. I. K. I. S. (Chairman) Calcutta   | 13. M. R. FAKIAJI ESQ. of Messrs M. R. Bar and Son, Merchant, Calcutta                                   |
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| 6. J. J. SAMUELJI ESQ. of Messrs Abraham Solomon Seligson and Co. Merchants, Calcutta  | 15. ABDUL FATHI AHMEDJI ESQ. of Messrs Hajee Noor Mohamed and Co. Merchants, Calcutta                    |
| 7. N. S. CHAHALJI ESQ. Governing Director of Messrs Chandra and Co. Ltd. Calcutta  | 16. HAJEE MAHOMEDJI ESQ. Gunny Broker of Messrs Moran and Co. Calcutta                                   |
| 8. JOHN M. CROCKY ESQ. Attorney at Law, Calcutta   | 17. C. A. MACKENZIE ESQ. of Messrs Mackenzie and Ryce Ltd. Calcutta                                      |
| 9. N. K. KRISHNA RAU ESQ. of Messrs Sonant Nitya Lal Pan boy Merchant and Ship Owner, Calcutta   | 18. NOOK MAHOMED J. N. VALLABHJI ESQ. of Messrs Mackenzie and Ryce Ltd. Calcutta                         |

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The Company is being formed for the objects set out in the Memorandum of Association and particularly for the purpose of carrying on Insurance business of every kind and description, such as Fire Marine Life, Accident, etc., etc

The Head Office of the Company will be in Calcutta. Branch Offices and Agencies will be established in London and Glasgow at an early date

It is a well known fact that up to the present Insurance has made little progress in India. The advantages of insuring risks are known to and understood by very few and only in large commercial cities. Hence a great portion of insurable interest is left uninsured. Moreover, a strong prejudice against insurance is ingrained in the minds of many, based on the idea that to insure against risks shows a lack of confidence in Divine Providence. This is entirely due to ignorance and lack of Commercial education and with the growth of Indian Commerce and Industry, the demand for insurance must increase in all parts of the country

India is now awakening to the vast possibilities of its Industrial and Commercial Development. Companies for industrial, commercial, mining, shipbuilding and

## Auditors

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MESSRS PATILSHAY AND PROHIT BOMBAY

## Managing Agents

MESSRS MACKENZIE AND KATAPALLY of No 2 Lyons Bazaar Calcutta

## Registered Office (Temporary)

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every other purpose are being floated in all the large centres of India and the great wealth of India is being used to subsidise these enterprises. Indian merchants who were content formerly to buy and sell goods are now engaged in their manufacture and production. This movement must give rise to an ever increasing demand for insurance

The rise in prices of almost all commodities with the outbreak of the war has necessitated a corresponding increase in the amount of risk to be covered. Such increase may safely be computed to be 100 to 200 per cent above the pre war period. It will be a considerable time before the world reverts to its normal pre war conditions

All over the world new Insurance Companies are being floated to meet the increasing demands for insurance. Indian Companies at present are unable to handle India's insurance business and in consequence a very large proportion thereof goes to British and other Insurance Companies. It is the intention of this Company to carry on active business operations in all parts of India and to issue policies and documents in the vernacular languages. In this manner the masses of India will, ere long, realise the benefits of Insurance

This Company is being floated with a sufficient capital to enable it to open branches and connections throughout India and other parts of the world and to be in direct touch with the needs and requirements of the people and to educate and bring home to them the numerous advantages of insurance to themselves, to their business and to their country at large.

An outstanding feature of this Company is that the paid up capital and other funds available accruing from time to time will be invested only in Securities of the Government of Great Britain British India or other British Colonies or Dependencies and in other Securities guaranteed by such Governments and Securities sanctioned by the Laws of Great Britain and British India for investment of Trust Funds. A provision to this effect has been incorporated in the Memorandum of Association of the Company and the Company is therefore restricted from investing its money in any other form of investment. Arrangements have also been made with the Bank of Bengal Calcutta, to act as custodians of the securities held by the Company. Furthermore the Company will advertise in the public Press at frequent intervals statements of all securities held by its Bankers for safe custody. The public at large will thus be kept acquainted with the financial stability of the Company and the Company will further command the confidence of other Insurance Companies and secure a large insurance business.

The working of the Company will be in the hands of the firm of Messrs Mackenzie and Rajabally. This firm consists of Mr G. A. Mackenzie and Mr. J. M. Mahomed Rajabally. Both these gentlemen have been engaged in Insurance business of all kinds in India for many years past and have a very wide experience.

Mr G. A. Mackenzie has been connected with one of the largest European firms in India for the past twenty five years and has during the whole of this period been actively engaged in the organisation and working of their Insurance Department. He has also had a considerable experience of the appointment and control of Insurance Agents throughout India, Burma and Ceylon.

The Company will thus be controlled on sound British Insurance lines.

The Company having secured the services of the Managing Agents and having arranged for Offices and Staff will be able to commence business without any loss of time.

The Directors are all practical business men in close touch with commercial and industrial enterprises in India.

In order to induce Shareholders to take a lively interest in the affairs of the Company any holder of shares of the nominal value of Rs 5000 (at present equivalent to the paid up value of Rs 1,750) directly placing business with the Company will be entitled to a special contributory bonus on premiums earned by the Company out of the profits accruing to the Company on that business as the Board of Directors may from time to time decide.

As a large number of Indian merchants transact business exclusively in vernacular languages notices, circulars and other necessary information will be published with translations in as many vernacular languages as the Directors may consider expedient.

The preliminary expenses of floating and advertising the Company are estimated at Rs 50,000.

No sum will be paid to the promoter.

No sum will be paid to any Director in cash or shares to induce him to become a Director, or to qualify him as such, or otherwise.

**COMMISSION** — No commission exceeding one per cent of the face value of the Shares will be paid to Brokers.

**AGREEMENTS** — The following agreement will be entered into by or on behalf of the Company —

An agreement between Messrs Mackenzie and Rajabally and the Company whereby Messrs Mackenzie and Rajabally will be appointed Managing Agents for a period of thirty five years and thereafter until they shall be removed by an Extraordinary Resolution of the Company passed at an Extraordinary General Meeting specially convened for the purpose, and of which not less than twelve calendar months notice shall be given, and at which persons holding or representing by proxy or power of attorney not less than three fourths of the issued capital of the Company for the time being shall be present.

The remuneration of the Managing Agents shall be a commission of 7½ per cent clear on the net premium actually received by the Company as shown in the Revenue Account of the Company and also on the net premium paid in respect of any other Insurance business placed by the Company. Such commission shall not in any year be less than a guaranteed minimum sum of Rs 50,000.

The expression "net premium" shall mean and include the gross premium received by the Company in respect of risks covered by them less the cost of re-insurances effected in respect of risks covered by such premium and all rebates of premium paid commissions and allowances to Branches and Agents and Sub Agents in respect of such policies.

The Managing Agents will possess the various powers conferred by the Articles of Association.

**DIRECTORS** — The following are the provisions of the Articles of Association as to the qualification and remuneration of Directors until otherwise determined by a General Meeting —

- (1) The qualification of a Director (other than the *ex officio* Directors) shall be the holding of Shares of the nominal value of Rupees Five Thousand.
- (2) Remuneration Rs 50 per meeting attended.

**APPLICATION FOR SHARES** — Application for Shares should be made upon the prescribed form and forwarded to the Company's Bankers, the Alliance Bank of India Ltd, Calcutta and the International Banking Corporation Ltd, Calcutta or to the Managing Agents, Messrs Mackenzie and Rajabally, with Rs 18 per Share.

If no allotment is made the deposit will be returned in full and where the number of Shares allotted is less than the number applied for the surplus will be credited in reduction of amount payable on allotment.

Failure to pay any subsequent instalments on Shares allotted when due will render previous payments liable to forfeiture.

Copies of this Prospectus and form of Application attached may be obtained from the Company's Bankers, Managing Agents or Solicitors.

Copies of the Memorandum and Articles of Association of the Company and of the agreement above named may be inspected at the office of the Company's Solicitors or Managing Agents during the usual business hours.

A copy of the Memorandum of Association in accordance with Section 93 (a) of the Act is attached to the Prospectus.

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of Dhruvadia  
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H M MEHTA, Esq., (Ex Officio) of Messrs H M Mehta & Co

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The BANK OF INDIA, Ltd

## *Solicitors*

Messrs MULLA & MULLA

## *Auditors*

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## *Managing Director*

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# "Commerce and Industries"

Vol. I.

November 1919

No. 5.

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# "COMMERCE & INDUSTRIES"

Vol I

NOVEMBER 1919

No. V.

## COMMENTS OF THE MONTH.

### Financial Situation in England.

THE month abroad has been conspicuous for economic unrest, labour strikes and industrial stagnation. In Great Britain, the financial burdens resulting from the war have seriously affected trade and industry and frantic efforts are being made for raising money to meet the national deficit. Mr. Chamberlain announced, in the House of Commons, drastic and immediate reductions in the Army and the Navy. He denounced a general Capital levy but pointed out that the question of a special levy on wealth accumulated by reason of the war stood on a different footing. A Committee is to be appointed to advise the Government on this matter. Mr. Churchill announced that owing to the reduced armies of occupation, Germany's indebtedness would decrease to 18 millions. The financial difficulties in Austria would enable that country to pay only 15 millions out of 35 budgeted for. Mr. Churchill pointed out that 67 out of 118 millions which was the War Office deficit, constituted deferred payments. Fifty one millions have been spent in railway strike, the rupee exchange and the army. The extreme poverty in Germany might cause explosion at any moment and may affect Great Britain. In view of all this gloomy outlook, Mr. Chamberlain's optimistic prophesy that without additional taxation or borrowing a substantial surplus would be available in 1920 for the reduction of the debt has caused surprise in some quarters.

### Coal-miners' Strike in America.

While the echoes of the Railwaymen's strike have not yet subsided in England, news comes of the Coal-miners' strike in America, revealing

strange combinations and connections. The attitude of the United States Government was firm towards the strikers and drastic measures were taken to suppress the disorder resulting from it and also to deport all aliens engaged in Red activities. As we write, the strike has not ended as the miners are not satisfied with an increase in wages of 11 per cent and so negotiations for a settlement of the strike have broken off. There is again a strike of several thousands of iron moulders in England, a strike in Alexandria and in our own country, of mill hands, at Cawnpore. This unrest in the labour world is a manifestation of the wave of economic crisis now sweeping everywhere dislocating business and disturbing the established order of things. Industry can only grow when watered by abundant capital and skilled labour but the world-situation, at present, is not favourable to its development. We hope that the serious effects of the war, which are responsible for such things, are gradually beginning to be overcome and that ere long, there will be an end of these strikes and disputes and lock outs.

### England and Coal Industry.

The coal industry in England has been getting into a state of chaos. In the House of Commons, a motion for the appointment of a Select Committee to enquire into the position of the coal industry with regard to the selling prices, profits, cost of production and output was brought forward by Mr. Bruce, which, though defeated, evoked discussion and brought out several interesting points from the Government. Sir A. Cluddes pointed out that a large supply had become available for export on

account of shrinkage of shipping engaged in coastal trade. In October, the coal industry showed a deficit of 9 millions sterling. A small proportion of coal which was being exported was making much profits and he anticipated, however, that the deficit would be paid off in December and that there would be a profit of 17 millions at the end of the financial year. Sir Geddes defended this position by stating that he did not wish to perpetuate the vicious circle of increasing cost and rising wages which will have the effect of strangling the industry of the country. Government have requested important accountants to examine the coal estimates and report upon the data on which reduction was based.

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### **India and the Reforms.**

The most notable event of the month in India has been the publication of the Report of the Joint Parliamentary Committee on Indian Reforms. We note with real satisfaction that the Committee have discharged their arduous duties in a manner acceptable to the people of India. The Reforms recommended by that body are conceived in a liberal spirit and are a first step on the road to Responsible Government. We join in the universal expression of praise of the labours of Mr. Montagu and Lord Sinha and for their success in overcoming a great deal of opposition in England from interested quarters. We do hope that Parliament will pass the Bill without further mutilation or delay so that the energies of the best minds of India, which are now occupied in political agitation, may flow in the constructive field of industrial organisation and development, which is the country's most crying need.

\* \* \*

### **Fiscal Autonomy.**

We must, however, express our surprise that the Committee have not recommended the grant of fiscal autonomy to India. The Indian witnesses before the Joint Committee were unanimous in pressing forward this demand. Unless India is to have an effective voice in deciding the fiscal arrangements within the Empire, we feel strongly that her interests will be subordinated to those of the other parts of the Empire. We note with satisfaction that the development of industries is to be transferred to Indian control but without fiscal autonomy, much cannot be done in this direction.

We have not overlooked the fact that the Government of India is to have greater fiscal freedom but as the Reforms proposed do not give us substantial control over the Central Government, there is not much ground for hoping that everything will be done with due regard to the interests of Indians and of Indians primarily. But still, we shall hope for the best.

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### **Washington Labour Conference.**

The Committee of the International Labour Conference at Washington has submitted to the Conference a draft convention providing that children under 14 should not be employed in any industries. Japan has accepted the recommendation with some reservations. Regarding India, it has been proposed to inquire into the extent of the distress likely to be caused by such a prohibition. We feel sure that there will be no difficulty in bringing into force a most humanitarian measure of this kind. By employing children under 14 in factories, the nation spoils a good deal of useful material. The employers will find it difficult to accommodate themselves to the new situation but both in the interest of the State as well as that of labour, we wish that there is an end of juvenile labour in India.

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### **The Peace Treaty**

The situation arising from the American Senate's action with regard to the Peace Treaty has caused a ferment throughout the world and in Europe, the position is considered as grave. The non-ratification of the Peace Treaty leaves America technically at war with Germany. In view of the serious economic position in central Europe and of the flaming advance of the Bolshevist movement everywhere, any delay in ratification will have the disastrous effect of upsetting the peace of the world. Disturbances are already reported from Ireland and Egypt. In Germany, the movement in favour of the discredited Kaiserdom appears to be gathering force. The League of Nations will be shorn of its plume if America were not to take active part in it. The world situation is distinctly menacing as we write, but the American newspapers are hopeful that an agreement regarding the Peace Treaty will soon be reached. We only say, Amen.

**Madras Cotton Crop.**

In an interesting paper which he read before the Madras Publicity Board, Mr H C Sampson, Deputy Director of Agriculture, Coimbatore, gave a history of the Madras Cotton Crop and indicated its future possibilities. The normal area of cotton in Madras cannot increase indefinitely because the possible area of country cotton is limited by the extent of Black Cotton soil. But in Madras, the Cambodia cotton which was introduced some 15 years ago became a common crop in garden, dry and wet lands throughout the Southern districts. The Cambodia cotton, though an entirely different species to the Indian cottons, is a crop which once sown will last three-four years, it requires no labour except to pick the cotton and with a lucky season may bring in a profitable return. The opportunity was fully availed of and the farmer started to get every ounce of cotton which he could. But the Cambodia cotton crops offer conditions most favourable to the attack of insect-pests and disease. The damage done was very considerable but the Pest Act insisted on the eradication of all old crops of Cambodia, particularly in Coimbatore. But the cultivation of Cambodia cotton, on the present lines, would soon lead to its extinction affecting also the local cottons. If Cambodia cotton is treated as an annual crop there is immense future before it, as it will be not only a source of profit to the farmer but, if produced in sufficient quantity, will make India less dependent on foreign countries for the supply of yarn and cloth.

**Sir George Barnes in Bombay.**

At a meeting of the Indian Merchants' Chamber held on the 26th November in Bombay, Sir George Barnes in replying to the address of Mr Jehangir B Petit pointing out several of our grievances and requirements was of opinion that a very great step forward has been taken in the matter of fiscal autonomy. On the subject of Imperial Preference, Sir George said that a Committee will shortly be appointed to consider the question and appealed to the merchants to take a wide and statesmanlike view of the situation. Referring to the recent imposition of an import duty on hides and skins, the Member for Commerce

said that the object was to ensure that hides and skins should be converted into fully tanned leather in India or in other parts of the Empire, instead of, in foreign countries. On the question of the import of dye-stuffs into India, to which some unnatural restrictions have been put, Sir George said that Indian interests will be primarily consulted in the matter and with this view, instructions have been issued to the Collectors of Customs at all the ports in India to issue licenses in all cases where the dyes required cannot be obtained from the United Kingdom. Regarding the claim for the representation of Indian opinion before the revision of tariff valuation Sir George would consider the joint views of both Chambers in Bombay. After pointing out what was being done in the matter of Civil Aviation Sir George appealed to the merchants to use their influence in the direction of caution in launching new industrial enterprises, as a crop of industrial failures at the outset would retard development of industries.

**Co-operation in Mysore.**

The Ninth Mysore Provincial Co-operative Conference was held under the presidency of Mr G K Devadhar, Vice-President of the Servants of India Society. The address of Mr Devadhar analysed the growth of the Co-operative Societies in India and also in the Indian States. Referring to the work done in Mysore, the President said that "if praise coincides with truth, I want to give it frankly" and proceeded to explain how rapid the growth has been. He also paid tribute to the endeavours of the Government in assisting the societies with men and money. From 5 societies in 1905-6, the number has grown to 1,350 at the present time with a membership of about 99,000 and a working capital of 90 lacs. Mysore, said Mr Devadhar "occupies a position of great pre-eminence in the Indian Co-operative world." The President also paid a well deserved tribute to H H The Yuvaraja for his valuable services in the cause of co-operation, to the Registrar, and other officers and concluded his thoughtful address by an exhortation to all to promote the work of co-operation in the State.

## EDITORIALS.

### Imperial Preference.

**T**HE problem of Imperial Preference in its application to India is undergoing a great deal of discussion both in the press and on the platform. Coming close upon the publication of the Report of the Selbourne Committee, which has not recommended fiscal autonomy for India, this topic has an unsavoury about it. The recent orders of the Government of India in putting restrictions upon the import of dye-stuffs, in a manner most unfavourable to the Indian manufacturer and in allowing a rebate of 10 per cent. on hides and skins to countries within the Empire lead us to conclude that the policy of Imperial Preference has already begun to work. We do not deny that, as part of the Empire, India has certain obligations to discharge, economically and financially, but we cannot share in Sir George Baines' optimism that, in our legitimate pride in belonging to the Empire, we can countenance any measure which will tend to sacrifice the interests of India for the benefit of the other parts of the Empire.

What India wants at present is the power to decide her own fiscal policy and the right to manage her affairs in the way she deems best. She is industrially the most backward country in the world and until she is in a position to stand on her own legs and compete with the world's markets, her nascent industries need protection. For this, India must have full power to regulate her fiscal laws. If the self-governing Colonies of the Empire have the right to frame their own tariffs, we do not understand why India should be denied this same privilege. In replying to the despatch of the Government of India on the Industrial Commission Report, the Secretary of State says that the question of fiscal autonomy was deliberately excluded from the scope of the Commission. We are unable to find any convincing reason for this indefensible action on the part of the Government except it be to bury the question and allow India to be the dumping ground for foreign exploiters. Fiscal freedom, it needs no reiteration, is the very backbone of all industrial progress and if our rulers earnestly desire, as we hope they do,

that India must become industrially great, they must realise that this cannot be done by evading the solution of the problem of fiscal autonomy. If the Industrial Commission had been allowed to gather evidence on this question, there would now be before the country, a mass of convincing arguments in its support. We regret that this opportunity was not availed of.

India can have little objection to Imperial Preference if that means that preference will be given to the interests of the sons of the soil over the interests of the other parts of the Empire. The Colonies, if we mistake not, are having preference of this kind. But if Imperial Preference becomes Imperial exploitation, nobody can, for a moment, accept such a policy. In regard to dye-stuffs Great Britain acts as middleman and the hardships and losses which this arrangement involves may well be understood from the following representation of the Indian Merchants' Chamber, Bombay, to the Member for Commerce and Industry —

'The restrictions imposed are for all practical purposes in the nature of a subsidy for the British Dye manufacturers. If these stand in need of any protection my Committee submit it should have been given as a subsidy and openly by the Imperial Government and not by the Govt. of India, creating almost a monopolistic market in India for the benefit of the British Dye manufacturer or trader. To thus penalise Indian industry and trade for the purpose of giving an indirect subsidy to the British Dye manufacturer or trader is, my Committee consider, opposed to all principles of even fair trade within the Empire. My Committee would like to know if restrictions of this character have also been imposed either in the United Kingdom or the self-governing Colonies. I hope you will excuse my Committee for drawing the only inference possible that the restrictions are imposed to benefit at the expense of India the British Dye manufacturers and traders who may, for aught we know, even import dye-stuffs from foreign countries and shop them here. We were recently informed that the first consignment of

dyes according to the reparation terms of the Peace Treaty was coming shortly from Germany to the United Kingdom, and it is not at all unlikely that a portion of this will find its way to India through the British merchants at rates far higher than those for which they were obtained.

Again, while there is an export duty of 1 per cent on raw hides and skins, we cannot understand why a rebate of 10 per cent should be allowed to Great Britain and much worse to South Africa and Natal. Sir George Baines repudiated that any general scheme of Imperial Preference was involved in this arrangement. We confess we cannot follow the Commerce Members' argument. If the Government are really solicitous of the welfare of Indians and desire to protect their interests, the right way to do it, we believe, would be to impose an import duty of 15 per cent on foreign manufactured leather goods. It is the Indian cultivator that will suffer for the sake of Empire.

Sir George Baines announced that a Committee would be appointed, on which unofficial members will be represented to obtain the views of the public on the general principles involved in the subject of Imperial Preference. While feeling thankful for this concession, we feel strongly that the first and essential necessity of India is to secure fiscal autonomy. If additional burdens are to fall on the poorer classes in this country, what matters it to them which country benefitted at their expense? We desire that any discussion, at this stage, of the policy of Imperial Preference, while yet we are not fiscally free, will be disastrous to India. As we are not on terms of equality with the other parts of the Empire, any decision that may be arrived at will be forced on us. We have already had a foretaste of the new policy in the matter of dyes and hides.

We make an earnest appeal to Indians to concentrate their attention in winning fiscal autonomy before she lends herself, in an unguarded moment, to support this novel kind of Imperial Preference. We make no apology for quoting below a passage from the address of the Indian Merchants' Chamber, Bombay—

"Fiscal freedom for India is what my Committee have always urged as the very backbone of all commercial and industrial progress in

this country. My Committee take this opportunity of drawing your attention once more to the Committee's emphatic opinion on the subject. If the Colonies can have full fiscal freedom and can adjust their tariffs in their own interests even against England without sacrificing Imperial interests there is absolutely no reason why India cannot. I may be permitted to add that in the opinion of my Committee it is impossible to make India industrially great unless full fiscal authority is given to her."

\* \* \*

### The "Pioneer" and Indian Industries.

WE notice that our All-India contemporary appears nervous over the recent action of the Indian capitalists in launching various new companies in this country. It calls this is the 'fever of speculation' and says that this is the result of the 'wide spread belief that an industrial India can be created in a day.' We may assure our contemporary that there is little truth in its observation. Even if India desired this consummation she cannot achieve it as she is hampered, on all sides, by innumerable restrictions. It has long been one of the earnest hopes of the Indian leader that Indian industrial development must advance side by side with her political progress. Owing to various causes, this was not possible. It was felt, by actual experience, that no advance in the field of industrial development was possible without political power. Now that a new constitution is shortly to change the political relations between the rulers and the ruled, Indian capitalists feel that they can, with advantage to their country, invest their capital in large concerns and expect to see the unnatural fiscal arrangements in this country disappear very soon. This is, we believe, the real reason. While we admit that there is great risk in hasty and ill-considered ventures, we do not feel with the *Pioneer* that there is anything wrong or unnatural in these developments.

As regards the alleged unfairness of the transfer of industrial development to Indian control, we can answer that Indians have experience in managing great industrial concerns and we do not wish to cite any names in support of our statement. The 'dangerous possibilities' spoken of by our contemporary exist only in its imagination and in its desire to continue to profit at the expense of India.

The Government of India with the best of intentions, have not been able to promote the industrial conditions of India, or rather they were hedged round with difficulties which barred the free encouragement of Indian industries. Where they have not been able to achieve much, it is only fair that they must seek the co-operation of Indian leaders in this necessary work. We fail to see, therefore, any point in the *Pioneer's* latest outburst

#### **Himalaya Assurance Co., Ltd.**

Rai Bahadur Sukhlal Karam, O B E, is very well-known not only in the Punjab, but also on this side of India for his biggest subscription to the war loan as well as his numerous gifts in the shape of money. He has just made a gift of millions of peace flags and as a businessman he is very widely known. He has already floated in Calcutta the Karam Industrial Bank the shares of which are already quoted at premium. The Rai Bahadur is at the head of these concerns, and without benefitting himself he has so economically arranged the construction and management of these concerns that it is no doubt he has proved to India what others should do thereby advancing the welfare of the Indian public at large. In order to consolidate and strengthen the position of the Bank and not to give the Bank any taint of suspicion, the Rai Bahadur has launched under his direct supervision an Insurance Company, namely the Himalaya Assurance Co., Ltd, the salient features of which go to prove that it is one of the most generous and solid concerns. All the capital and other funds will be invested in Government securities. Many Insurance Companies came to grief in advanced countries like America, which is called the mother of insurance and these evils are very well exposed in the pages of the voluminous judgment of the New York Commercial or Insurance scandals where it is found that the promoters (Agents or Managing Directors mostly utilised the funds for starting and financing speculative ventures beneficial to themselves directly or indirectly. One of the Companies investments to the extent of Rs 30 lakhs were in the landed property in Russia. This did not give any return to the Company for years together. Ultimately it was found that the top man had purchased these on his own

account on the expectation of finding gold there and when it proved a failure sold the same to his Company at a fancy price. Human nature is always liable to temptation where money plays a prominent and mischievous part. Unfortunately Indian commercial knowledge and lack of education does not allow even an expert businessman who generally deals in millions to scrutinise all these evils. Risks to the extent of millions are without hesitation lodged with an Insurance Company without ever thinking of the solidity and safety of their investments and a policy which is not more than a piece of paper is looked upon as the only safety for future insurance. Rai Bahadur Sukhlal with his able Managing Agents seems to have discounted all such fears by safeguarding all the investments to their best. Moreover in order to prove the *bona fides* of their investments it is proposed to lodge all securities with the Bank of Bengal for safe custody and the Company will from time to time issue in public papers statements of such securities held by them. All these things prove that the Company's policy will be very genuine and most shareholders think their money being always in Government paper must be reckoned as gilt-edged security. This is the most opportune time for this Insurance Company to invest all its funds in Government securities because there are absolutely no chance of these depreciating further and the return by the way of interest is also very satisfactory. We understand the Company will invest part of their funds in War bonds issued in Great Britain. By such remittances to Great Britain, the Company will reap an extra advantage of the present high exchange. Since the shares are gilt edged there is no possibility of their price going down in the worst crisis. From the interest return only the company will earn at least 5 per cent and it is no surprise with vast possibilities in India for insurance owing to the higher prices of properties and commodities, the Company would command an exceptionally large business. From the reports of other Insurance Companies of the world it will be very easily seen that Insurance Companies always prosper except where funds are handled for selfish motives. As all the precautions have been properly taken we do not see why these shares would not be classified as trust security. When we say that Insurance Companies always prosper it means that on

the law of average this business is done, and since the law of average never goes wrong, so the insurance calculations go the same way. The Company has also given the profitable inducement to its shareholders by way of contributing special bonus at the end of every year out of the profits on whatever business the shareholder may send direct to the Company. Thus the Company will communicate directly with their shareholders and avoid the charges of middlemen whereby a great portion will be saved and prove advantageous to shareholders themselves. We should, therefore, recommend all businessmen and property holders to possess the minimum number of 500 shares the cost of which is Rs. 1,750 paid up for 2 years. We congratulate the Ru Bahadur on his talent and foresight in the construction of the Company, and we are proud to call him "Calcutta Tata" of our side. We wish all success to this Company, and would recommend many other promoters of other concerns to make their securities by following the principles of the Himadri Assurance Company, Limited.

#### **Indian Industrial Commission.**

The Government of India have, at last, published a resolution on the Report of the Indian Industrial Commission which was published in October 1918. The resolution gives some idea of the proposals likely to be adopted. The views of the Secretary of State on the subject have also been published for the information of the people. The Government of India state that they addressed Local Governments on the 7th December 1918 and obtained their views on certain questions of principle. They addressed the Secretary of State in their Despatch of 14th June 1919 and the latter's reply dated 20th September 1919 has been made public. In this connection we would like to know what steps the various Local Governments took to obtain the views of the Commercial communities before definitely replying to the questions raised by the Government of India. Coming to the proposals themselves, we note that the Indian Munitions Board is to be reconstituted into a Board of Industries and Munitions. This Board is to be under the direct charge of the Viceroy and the constitution is not clear as to whether any Indian member will be associated with it. Mr. Montagu accepts the recommendations of the Industrial Commission that the

Government should play an active part in the industrial development of the country and that this cannot be done unless they are provided with adequate administrative equipment and forearmed with reliable scientific and technical advice. After describing the various forms of assistance which Government can give in the matter, he leaves the details to be decided by the Government of India. Regarding the fiscal question, the Secretary of State says that it would be premature to discuss it and he is not prepared to make any recommendations until the views of the people are known. Why this question was deliberately excluded from the scope of the enquiry of the Industrial Commission, Mr. Montagu does not make clear. Had the matter been referred to it, there would now be available a mass of evidence sufficient to enable us to decide the problem. It, however, the Secretary of State is earnest in this matter, there ought to be no difficulty in appointing a Committee to consider the whole question. The Secretary of State favours a large measure of provincial independence and desires that Local Governments must be given a free hand subject to certain reasonable reservations. An All-India Industrial Service is to be created and that expert Committees are to be appointed to consider the recommendations of the Commission. We feel sure that in matters of this kind there will be neither favouritism nor partiality and that Government assistance, whether Provincial or Imperial, will not be bound by any hard and fast rules but will follow the advice of the respective Advisory Boards as to what sort of assistance will be needed for a particular industry.

We await with great interest the further steps of the Government of India for giving speedy effect to the recommendations so far made.

#### **Buying from Germany.**

The low price at which German goods are now being sold abroad, owing to the rate of exchange, is apparently alarming economists in Germany as well as manufacturers in the neutral countries which receive these low-priced goods. The attitude of the neutral countries is, of course, the same as that of some British manufacturers who object to the competition of cheaper goods than they can themselves produce.



On the other hand, the German economists take the view that Germany is ruining herself by selling goods at such a low price to her neighbours. Both views are quite tenable, but the real question that the world has to consider is whether there can be any practicable solution to such a problem. During the war it was frequently everywhere that there were two alternatives with regard to post war trade with Germany. We might take the view

that we would have no trade at all with a people who had so disgraced civilisation, but if we took that view then it necessarily followed that we should get no indemnity out of Germany for the cost of the war. The argument hardly needs to be pressed. Debts from one country to another can only be finally paid in goods, and therefore if the Entente Powers decline to take German goods they can by no possible means get any German indemnity.

## REVIEWS.

### Industrial Possibilities of India.

By R. TIRUMURTHI RAO B.A., I.I.,

(Simulasa Varadachari and Co., Madras)

The author has taken much pains to bring together in a handy volume many important papers bearing on the industrial development of India. He hopes, by this means, to acquaint the 'lay public of India with modern industrial methods and processes as practised in the West'. There are on the whole 16 chapters and some of the most important industries such as, iron and steel industry, manufacture of portland cement, of paper, oils, soaps, candles, etc., have been dealt with in an intelligible manner. A running survey of the Industrial Commission's Report is recorded at the end and the author makes a strong appeal to Indians for the building up of their industries. We have much pleasure in commending this readable and informing book to the notice of our readers.

### Report on the operations of the Madras Currency Department.

(SUPERINTENDENT, GOVERNMENT PRESS, MADRAS)

During the year under report, there was a shortage of silver and the Mints at Calcutta and Bombay worked at high pressure to meet the demands of the public. But the shortage led to the expansion of paper currency. The Bank of Madras undertook currency exchange work on behalf of Government in ten districts in this Presidency. The foreign trade of the Presidency improved from 2,911 lakhs in 1917-18 to 3,601 lakhs in 1918-19 or by 24 per cent and the coasting trade from 1,321 lakhs to 1,810 lakhs or by 37 per cent. Throughout the year the balances at the Bank have been high but this is said to be due to the fact that receipts from the sale of Treasury Bills and for the Second War Loan were not withdrawn from the Bank until actually needed for Government disbursements.

### Young Collegiate

An educational monthly for students (Young Collegiate Office, Sandhurst Road Bombay, No 4).

We have received the first number of this magazine which has been started for the benefit of students. It contains a varied selection of articles pertaining to the student world besides a few illustrations of leading educationists. We wish our young contemporary a long life of usefulness to the younger generation.

We acknowledge, with thanks, the receipt of the Annual Report on the working of the Factories Act for the year 1918 and also Annual Report on the Foreign Trade for the year ending 31st March 1919, from the United Provinces Government.

We have received a copy of the Report on the working of Co-operative Societies in Behar and Orissa for the year 1918-19. We congratulate Khan Bahadur Mohi-ud-din Ahmad, Officiating Registrar, on the successful working of the Department during the year, in spite of the adverse conditions prevailing during the period.

# PAPER-PULP INDUSTRY.

By Rao Sahab G. N. Sahasrabadhe.

## MECHANICAL PROCESS

Pulp appears in commerce in two different forms, these being the "mechanical pulp and the chemical pulp"

In the production of mechanical pulp, no chemical treatment is involved. The operations are all of mechanical nature and hence the name under which the material is dealt with in commerce. The mechanical process consists of grinding the material in order to separate the fibres and as the material is ground off it is washed thoroughly by flowing water, passed through screens, formed into thick sheets, from which water is extracted by mere pressing, packed into bales and shipped as "Mechanical pulp". It appears in markets in two forms as "Wet mechanical" and "Dry mechanical". It has certain disadvantages. It has less "felting power" and consequently is used only for low grades of paper. Yet it has got a great demand

## CHEMICAL PROCESS

Chemical process is a much more complicated process. By this process the material is got rid of its non-cellulose compounds, thus leaving behind only the pure form of cellulose and this is effected by treating the material with some chemicals and the particular re-agent used, gives its name to resultant product. Hence we have in commerce, soda pulp, sulphate pulp, etc. Different species of wood, grasses, rags, etc., all yield to this process. In each case, the preliminary treatment is the same. Take wood for illustration. The wood is cut into chips, bark removed, knots bored out, and is cleaned of dirt and dust. Then comes the digesting operation. The chips are digested in a solution of alkali or acid, special attention being paid to pressure, temperature, and duration because the final percentage yield of cellulose mainly depends upon these

Of the two processes, the chemical process has a wide application owing to certain advantages. Chemical "pulp" possesses comparatively more "felting power" and

hence is used for high class paper. Speaking with reference to the various raw materials available in India, all those can be worked up by chemical process only whereas the species of wood, with certain exceptions, can undergo both the processes.

## A NEW METHOD OF PAPER MANUFACTURING.

It is reported that a company has been formed in Gothenburg for the purpose of manufacturing paper, cardboard, etc., by a new method. The new method differs chiefly in one respect from that now in use for paper-making, viz., the employment of chalk as filling as well as binding material. Chalk has certainly been used in many places before now as a paper-filling material, but it has always been neutralised by adding carbonic acid to the solution, and it has thus been necessary to use a binding material. By this new method chalk is, however, used as a binding material as well and a double purpose is thus served. The chief advantage is, of course, the comparative cheapness of the new product. It is said that the paper is of smart appearance, the quality at the same time being very good.

## STRENGTH OF PAPER

From an examination of various papers prepared with different proportions of rags, sizing and boiling it appears the mechanical properties are improved by increasing the proportion of rags. Rosin sizing diminishes the strength while animal sizing increases it. An increase in the proportion of rags, also sizing of any kind, enables a larger proportion of leading materials to be retained by the paper. Loading decreases the strength of all papers—the percentage of loss approximating 22 times the percentage of loading material.

The following are the raw materials that are at present available to us in India for pulp making some of which already find their way to the Paper-mills —

- (1) Sabai Bhabai or Barb grass  
Ischaemum Augustifolium)
- (2) Mung grass (Haceharam Arundinacium)

- (3) Rags, hemp, jute, gunny bags, etc
- (4) Different species of wood, chief among them being the Himalayan spince and "Silver fir".
- (5) Cotton stalks and corn stalks
- (6) Elephant grasses *Certain species*
- (7) Pine-apple fibre

Bair grass fulfils the necessary conditions namely, concentrated large supplies and its suitability for the production of "Half-stuff". It occurs in great quantities in Bengal, Chota Nagpur, Nepal Tarai, parts of Central Provinces, Central India, in United Provinces, Rajputana, in the Punjab extending into Afghanistan, generally growing on warmer slopes and on steep hill-sides. However, the chief and important localities supplying the grass to the paper mills are United Provinces, Bengal, C. P. and Nepal Tarai. It holds at present the first place in India as a paper making material, as up to 50,000 tons of grass are consumed by the paper mills. The average price of the grass per ton comes to Rs. 9 in round figures.

Mung grass is a reed-like grass with a yellow long straight stem and is generally found in lowlying localities. It occurs in the plains of India. Its use is not so extensive as that of Bair grass owing to the fact that percentage yield of cellulose is comparatively low.

As for bamboos, there are principally four species that give us the best results and fulfil at the same time, the necessary conditions. These species are

- (1) *Dendrocalamus strictus* (the common male bamboo)
- Bamboos (2) *Cephalostachyum pergracile* known as *Tinwa*
- (3) *Bambusa polymorpha* (kyathaungwa)
- (4) *Thakwa*

As regards these, a thorough investigation has been carried out as to the utility of these species. For paper making, the well-known expert Mr. Syndall who was specially deputed to Burma by the Government of India in 1906 has published a most important note giving not only the results obtained based

on tests carried out on a commercial scale but also, information as to the outturn, cost of extraction, suitable localities, etc.

#### MR. SYNDALL'S INVESTIGATIONS.

The following table gives the percentage yield of unbleached pulp from the species tested of different growths —

Age	Tinwa	D Strictus Myanwa.	Kyathaungwa	Thakwa
Growth of	P. C.			
2 years	50 0	55 0	45 8	49 0
1 year	50 0	51 0	44 0	50 0
5 months	50 0	50 0	48 0	47 5

The common male bamboo (*D. Strictus*) which is comparatively small, either solid or hollow, is the most valuable and as such is mostly used. This variety is found all over India and Burma but not in Eastern Bengal and Assam. Another experimentist—I mean—Mr. Sumanas Dhirva who carried similar investigation in Banda State, gives the following percentage yield of unbleached pulp from the species referred to above. These are the results —

Variety	P. C. yield.
(1) Tinwa	44 5
Dhirva's investigations	
(2) Mainwa	41 0
(3) Kythaungwa	45 4
(4) Thakwa	.

#### SPECIES OF WOOD

From the above, it is quite clear that these species of bamboos give us satisfactory results and as such are workable on a commercial basis. The following analysis by the well-known pulp-experts, Messrs. Cross and Bevan, would be found interesting —

	Cellulose	Air dried.
		50 13
Bamboo		
Fat and wax	..	0 78
Aqueous extracts	...	10 56
Liquis and Pertons		
substances	.	24 84
Water	..	8 46
Ash	...	5 18

Analysis of  
"Bamboo".

The principal localities that give us enormous supplies of bamboo, are Burma, Eastern Bengal, Assam, Bombay and Madras Presidencies. The utilization of bamboo for paper making has now been conclusively proved and so the question has now passed the stage of speculation and experiment and is "as Mr Syndall aptly remarks" a practical commercial problem

As for rags, waste paper, etc, it can be safely said that though they form a part of the paper-maker's materials, yet in view of the Nature's help given to the paper-maker, in the enormous supply of various materials, it would not be too much unwise to speculate that the use of rags, etc, would become extinct at least as a matter of economy

As regards various species of wood, that are abundantly found and, it is probable, would satisfy the necessary condition, namely, concentrated large supplies and their suitability for pulp-making, all that can be said at present is that the matter deserves the attention of the Government and the pulp experts in the country. I shall sanguinely hope that some of our patriots would come forward and do research work in this direction, with the help of the Government. Mr Syndall has rendered a valuable service by doing research work in this direction. He has experimented upon different species of soft wood found in Burma and he maintains that some of the species would be serviceable to us. However the utilization of the species of wood is a matter for thorough investigation. At present we know that only "Himalayan spruce" and "Silver fir" are the species found fit for use. Let us hope, however, that the question of utilization of different species of wood in India, will become, some day or other, a practical commercial problem

As regards cotton-stalks, much cannot be said at present. Although the matter has not passed the final stage of experiment, yet it can now be safely said that the material would find its way to a paper mill in the near future. In cotton-growing provinces, at present, cotton-stalks are either burnt or wasted away uselessly. If these stalks are put to use in this direction, we shall certainly have a material gain. As an illustration of the enormous supply of cotton-stalks, I shall quote figures from the Local

Administration Reports for Central Provinces and Berar separately

The area under cotton in C P and Berar is as follows —

Central Provinces	12,28,632 acres
Berar	28,19,680 "
Total	40,78,312

As regards the utility of cotton-stalks for pulp making, I am doing at present many efforts. Two years back, I had sent a bundle of cotton-stalks to Mr Plymen, the Agricultural Chemist, Nagpur, for investigation into the suitability of cotton-stalk fibre for paper-making. And experiments were made by him which showed that cotton-stalks yield nearly 10 p c of cellulose. This percentage figures a working of the material on a commercial basis. But to make sure, the Director of Agriculture and Industries, C P has despatched two tons of cotton-stalks to the Titaghar Paper Mill, Calcutta, with a view to make an experiment on commercial basis, which will give us certainly a clear idea as to the working of the material on a commercial scale. The following is the analysis of cotton-stalks as made by Mr Plymen —

#### ANALYSIS OF COTTON-STALKS BY MR PLYMEN

Cellulose	12.4
Liquis and Pectous substances	41.5
Moisture	10.5
Mineral matter	5.8

In America the question has already arrested the attention of the people and experimentists have already had certain conclusive results and Americans might have taken the problem in hand for practical solution. In this connection, the following table is worth a perusal —

Name	Acres under cultivation	Tons per acre per annum	Tons of raw material per annum	P C yield of pulp	Ton of pulp per acre	Tons of pulp per annum
Cotton stalk	1 00 00 000	0.54	45 00 000	55.4	0.15	15,00,000

#### ELEPHANT GRASSES

Now about the elephant grasses. These are found scattered in certain localities of India and Burma. Many species were experimented upon by Mr Raitt, the well-known cellulose

expert. He concludes that, of all, the four varieties are extremely useful for pulp making. Particularly the two species (1) *Saccharum spontaneum* and (2) *Saccharum narenga*, which are found in Assam, make a fair grade of paper. Recently experiments on a commercial scale were made with Savana grasses, resulting in the manufacture of several tons of paper prepared from each species. Both species gave good results. The possible out-turn of these grasses in India is enormous, especially from Assam, Bengal, United Provinces and Burma and the cost of extraction is also normal.

#### A VALLEY OF GRASS ROUND CHINDWARA C. P.

I would also like to draw reader's attention to a species of grass growing around Chindwara in C. P. which, according to the Forest Economist, is next to Bail in quality and which has been identified by him as "*Pennisetum Alepocurea*." The jungle which grows the grass is about 20 miles from the railway and is joined by a good road. Suitable site for a factory, says "The Indian Trade Journal" can be found two miles away from the railway and plenty of water is also available from a perennial stream. The quantity available per year would not be less than 18,000 tons. Shall I hope that capitalists in Central Provinces and Berar would take advantage of this opportunity?

A list of the names of other pulp grasses and the position of the tracts in which they are grown is given by Mr. Hole, Botanist, Forest Research Institute, in his preface to Mr. Rutt's report, pages 4 to 9.

I have so far dealt with the various raw materials available to us in India, making a due reference to the particular localities which give us an enormous supply and my object is to point out indirectly the suitable places where, if gigantic efforts were made, paper and paper-pulp factories would probably be run successfully provided, of course, other circumstances favour us. In the successful maintenance of a factory, getting constant supply of material at a cheap cost is the governing factor. In his nice note already referred to, Mr. Syndall has given estimates based on reliable sources, as to the cost of getting bamboos and wood, at factory premises, presuming that a factory is located

somewhere near Rangoon in Burma. The statements are lengthy, I therefore, do not wish to take up the time of the readers but refer them to the note published by Mr. Syndall.

I concede that there are practical difficulties in the way of establishing pulp-factories in India, but they can be overcome with the co-operation and help from Government. The task is tremendous which shall have to be handled with tact, skill and patience.

### DIFFICULTIES AND SUGGESTIONS

#### BOTANIST NECESSARY

The difficulties are—*Firstly*—The 18 kinds of grasses that are available for paper-pulp are grown in various forests all over the country in large areas. Even if we take forests of the Bombay Presidency—especially hills near Sukkar in Sindha, we find that various grasses are grown in large areas and the task of selection and identification of grass, will be a difficult business. A common man will not know the grasses useful for paper-industry and an Agricultural expert is the only man, who would be able to identify the grass. A Government Botanist is therefore needed, and we shall have to engage his services on an attractive salary.

#### SUPERVISION

*Secondly*—"Cutting operations" and "transportation of grasses from forests to factory premises," will be a troublesome business, as means of communications and roads are yet wanting. A very careful supervisor or a batch of men will be required to look after this work. He should be a man, who will not care for the hilly climate and should be able to bear the hardships that are generally to be met with by a man living in hills. Each kind of grass shall have to be stacked in different heaps to avoid confusion in pulping operations. We may approach the Government and the task will be found easier.

#### MEANS OF TRANSPORT, ETC.

As regards means of transit, etc., it should be kept in mind that in this respect Government help is absolutely wanted. The freight of transit puts a heavy and necessary burden on the factory and has a direct effect on the cost of production. The

difficulty is at present hampering the progressive working of the factory in India Government help is a grave necessity Let the Forest Department help the factories by way of giving expert advice, and permission to exploit the raw material in the forest at concession rates It is our common experience, that to take the raw material from forest to factory proves a most difficult and expensive task Let, therefore, facilities be provided to the factory concerning the construction of temporary roads from forest to factory, erection of store-houses, sheds, etc., in the forest, so that the difficulty may be minimised There is another adventitious circumstance that is harmful to the growth of industrial concerns in India

#### FREIGHT CHARGES

The freight charges on Indian-made articles levied by our Railway Companies are undoubtedly exorbitant and it seems, that the Railway Companies have a disdainful disregard for the interests of Indian industries This is a grave matter awaiting satisfactory solution at the hands of the Government

#### CHEMICALS

As regards the supply of chemicals, and other paper making materials, the present outlook is hopeless indeed We have the necessity to depend wholly upon the foreigners for the materials The instant they raise prices on these materials we begin to suffer Hence efforts ought to be made to develop our chemical industries The reason why the foreign paper sells cheaper in India, is that in foreign countries the chemical industry is so well developed that factories there get the chemicals very cheap The problem of chemical industry is hence intimately connected with that of paper industry They are so mutually interdependant upon each other that prosperity of one cannot be achieved unless the other is brought to the same level

#### MANUFACTURE OF COLOURS.

Similarly we need make vigorous attempts to manufacture our own colours and dyes and if proper attention is paid to the indigenous raw materials such as herbs, roots, etc., in which India abounds, it is just possible we

shall be in a position to manufacture our own colours and dyes which are so needed in every branch of industry

#### PROBLEM OF FUEL

The problem of "fuel" deserves attention. It is our fortune indeed that we have got in India some coal mines here and there But they are not sufficient to meet our present demand Hence efforts should be made, with the help of mining experts, in making a survey of all those provinces in India which lie at present unexplored, and it is probable that we would be lucky enough to discover some other coal mines in this or that province to our material gain Unless there be hearty co-operation between the Government and the people, we shall have very few hopes of achieving tangible results, in our efforts to place paper and paper pulp industry on a sound footing

The Ghat Electric Power schemes and the proposed Koyna Projects of Messrs Tata and Sons of Bombay, will solve the problem of power and fuel to a great extent Foundation of Paper-pulp Mills near the above works will be greatly advantageous to the proprietors and Messrs Tata and Sons deserve the thanks of the industrial public in this respect

#### PREPARATION OF SURVEY MAPS

*Thirdly*—Maps shall have to be prepared with Government help or by a Syndicate established for the purpose, which will show the position of chief grass lands in each division—with names of species which are dominant being recorded in each case Such maps will be obviously of great value in operations dealing with fodder supply and afforestation schemes and in such economic questions as the selection of sites for paper pulp factories and so on. Such maps have been prepared in U. P. under Government orders

#### SELECTION OF SITES

*Fourthly*—Selection of suitable site for pulp factory will be an important factor in the operations Factories should be established on suitable site near grass areas where there is ample supply of water which is absolutely needed in pulping operations. These mills should supply pulp to paper mills established in the plains

*Fifthly*—Before pulp-factories are established we shall have to first ascertain whether the pulp would secure a good demand in the country and whether the concern will be profitable.

Preparation of pulp is an art and we need export for the purpose. There are no facilities provided in the country to teach the processes of various manufactures and private mills may or may not allow apprentices to work in their factory.

#### NECESSITY OF RESEARCH INSTITUTE AND LABORATORY

There are Research Institutes established by Government at Dohia Dun, Pusa and Bangalore, but they are all occupied with Government work and will not find time to meet the demands of the public. The Bangalore Institute which is the outcome of the late Mr Tata's generosity, may be of some use. This is the position in India. Establishment of Research Institutes financed and managed by Indians is therefore absolutely needed in the country.

To carry out this purpose we shall have to build a good Laboratory and Research Institute equipped with all the necessary machinery and plant for both experimenting upon raw materials and for making experiment on a commercial basis. When it is once proved that a pulp-factory will be profitable, then any Company may come forward and undertake the concern.

#### PAPER EXPERT

A paper-pulp expert shall have to be ordered from Japan or England on an attractive salary. The expert should carry on the Research work and teach the processes of manufacture of pulp and paper to several apprentices who will be admitted to the Laboratory to learn the work on certain conditions. In a year or two, the Laboratory will produce a batch of pulp-makers who have completely mastered the art of pulp manufacture. They will have a great demand in the country when pulp-factories will be established in other parts of India.

- (1) Giving expert advice on all matters bearing on paper industry

- (2) Giving concessions to tap the raw material and facilities for their extraction.
- (3) Fixing concession rates of railway freight on Indian-made articles.
- (4) Patronising Indian mills, purchasing the whole quantity of paper they require from them.

#### WHAT FOREST DEPARTMENT HAS DONE

13 Help from the Government in the above directions, would without doubt, stimulate us in our endeavours to develop paper industry in India. It is indeed praiseworthy that Government are doing something substantial, especially through the Forest Department. In this connection I may mention particularly the names of Messrs Syndall, Pearson and Raitt who have contributed largely to the problem of paper industry. Mr Pearson, while speaking before the Indian Section of the Royal Society of Arts, London, on the recent industrial and economic development of Indian forest products, said—“The investigations of the Institute have shown, however, the possibility of manufacturing pulp on a commercial scale from bamboo areas in Burma, and also Savannah grasses in U P Bengal, Assam and Burma.” He was confident that both products will in future play an important part in the paper pulp industry of the world as they present no great difficulty in extraction. He anticipates that the industry will go forward when normal conditions are restored to the country. Mr Raitt also rightly observes “a country producing not only the raw material in abundance but which also provides the important manufacturing factors of fuel and lime and also cheap labour, requiring no imports except comparatively small amount of chemicals, in these, I venture to say you have the foundation and essentials of success to a degree paralleled by few, if by any other, industries.”

#### OUR TASK.

Every one who gives a thought to the problem takes an optimistic and equally cheering view. Ample supply of raw materials at our disposal, the Government showing fully interested, and ever ready to help us to the best of this power, now the



future solution of the problem is our task. It would be unwise on our part to remain contented by merely looking up to Government for light and leading. This is the fit time to come forward with capital and achieve something substantial in the field of industrialism. Let our capitalists, liberal-minded persons come forward to evoke the cause. Let us now be prepared to carry on the industrial crusade, and form Paper Trade Unions and combinations of Paper Factories in India. For if not now, then perhaps never. It may particularly be noted that Dominions Royal Commission and the Empire Resources Committee, Imperial Institute of London and other Committees have been formed in London and are working out several schemes. Lord Islington, the President of the latter Committee is reported

to have said that the whole trend of Holland Commission's enquiry was in keeping with the policy of the Committee and presumably if the Imperial Development Committee be now established, one of its duties would be to consider and make suggestions regarding the lines on which Indian Industrial Development should be pursued in the interests of the Empire.

The above needs no comment. To work actively and with co-operation, in order to achieve substantial progress is our immediate task. Let us then be up and doing something for our economic salvation "with a heart for any fate". Let ever our motto be "still achieving still pursuing" and, at the same time, let us "learn to labour and to wait".

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## BUSINESS HABITS.

*By Mr S. Kabboor, B.A., F.I.A.A.*

**C**ONSCIENTIOUS service of the public is the surest way of success in business, and there are laws which govern business that must be observed equally with laws which govern a nation. A man who possesses a large share of natural astuteness with just the requisite degree of unscrupulousness may for a time evade the laws to the detriment of the lowest-minded man who adheres to the laws of business, but that man may rest assured that the laws of business will, bring him before a tribunal, from which he will never escape at last, and his downfall is assured.

The laws of business are laid down by the Great Governor of all men with as much firmness and precision as the laws of the universe. If the conditions of individual success were the reverse of those on which the welfare of the community depends, then the interest of a man of business and the public would be opposed to each other. But they are, in fact, coincident. The man who attains success deliberately by postponing the service of the public to advance his own interest climbs in an unenviable and

precarious elevation. The supplemental virtues which may be linked to business are shrewdness, astuteness, firmness, energy, and push. Shrewdness is an instinctive wide-awakeness. Never over-reach or be over-reached.

Firmness may be often considered irritating to persons void of business habits. Business cannot be adjusted to the comfort of unbusiness-like people. Business is not merely a sphere for the action of truth and firmness, but also for the mooring negligence and a happy-go-lucky improvidence, of industry, and concentration, over-indulgence and meanness. Business demands high triumph over muddle-headedness and thoughtfulness and a brisk energy—Strong activity, conscientious intelligence, foresight, insight, promptitude and regularity, prudence, caution, judiciousness, and vigilance—all these virtues must be acquired to some extent by the man who yearns to make himself a success, and every one of them applies to the insurance profession as any other business and the same laws of business as were set forth are worthy of your earnest consideration.



# HOW TO DEVELOP INDIAN INDUSTRIES.

By Mr. P. K. Menon, B.A.

**W**ITH the dawn of peace after a continuous and devastating world war of nearly five years, we see that the attention of all right-thinking men is drawn to the field of the economic and industrial reorganisation. This reason is indeed obvious and needs no great explanation. Not only the nations that have suffered greatly in the war but also those that were more fortunate are busy planning new schemes for their commercial and industrial advancement to go ahead of those that had profited at their expense. We can reasonably expect to see in the near future a keen competition between the great powers.

In this commercial war, India also will have to bear her share. She cannot wait with folded arms and rest content with importing articles of daily necessity from outside, articles that are manufactured out of the raw products that she exports. Already there are signs which are in no way discouraging, which show that Indian capitalists too are alive to the needs of the situation, though they have hitherto failed to take full advantage of the opportunity. India is a land of immense possibilities, with abundance of raw materials, the extent of which has not till now been determined. Her resources have greatly been exploited by foreigners, while her own children were content with what was left. It is time that the Indian capitalists turn their attention to this pressing need of India for her material advancement.

The defect of having to depend upon foreign countries for manufactured goods of daily necessity became apparent during the days of the war, as many causes contributed to make the supply less and difficult to obtain. Though peace has now been apparently established in Europe, things have not reached the state of pre-war days and it is to be thought that some more time must elapse before normal conditions are finally restored. An attempt was made to manufacture in India such goods as were possible, but being handicapped complete success could not be had. It is, at the same time deeply gratifying to note that Indian industries in general have received a great impetus during the war.

Is it possible for India to become a great industrial country? Has she got the things absolutely essential for it at her own doors? Coal and iron are supposed to be the most essential things for an industrial country. India is not at all poor in this respect. Her coal and iron mines give promise of a bright future and capitalists have no reason to be anxious about these. Besides, the water power of India, is a thing which is even now unestimated. There is much evidence to show that if the water power in India be properly developed, it will be of immense help to the industrial development. It is a happy sign of the times that the Government are now trying to take an estimate of the possibilities of India's water power.

Economists are unanimous in maintaining that Indian labour is cheap and abundant. But it is stated that though the labour is cheap, it is ignorant and the cheapness is thus compensated for. We cannot expect these labourers to remain ignorant always and when once they are given the proper training, they will become good labourers and will be a match for the labourers of the other great industrial countries.

It used to be commonly said that Indian capital is shy and not forthcoming. But this cannot be taken as applicable to India as a whole at the present day. Indian capitalists are rising up to the occasion. During the last four or five months many large companies have been floated with Indian capital and under Indian management. They have learned by bitter experience what their money could have earned for them, if only they had made a proper use of it from early times. But one does not find the same great activity as could be found in the other great capitalist countries. All over India there are big Zamindars, who might invest their money in industrial or other profitable concerns and who for the most part do not interest themselves in the matter.

Before concluding, I would like to mention one or two difficulties that beset the Indian capitalist. It is very difficult to get expert opinion. In most of the cases, he has to

fall back upon foreigners to guide him sometimes even at a prohibitive cost. This foreign dependence has its own drawbacks. A still greater difficulty is the want of up-to-date machinery. Instead of trying to manufacture the necessary machinery in India, people have to import them from foreign countries, thus abandoning one of the great fields of industry. In many cases it is not possible to get just the machinery that we want. If fortunate enough to obtain the necessary machinery, the owners generally fail to keep pace with the improvements that are effected in them from day to day, but soon the usual routine with their old apparatus in the light of the improvements that have been made in other countries, make it unable to hold its own in the competition.

I would like to invite the attention of the

Indian capitalists to this aspect of the question. They would be doing a great service to themselves and to India if they try to invest their capital for the manufacture of the tools and plants that are required for the various industrial concerns. If all the necessary machinery had been available in India itself, the industrial aspect of the country would have been entirely different, for, during the war, she could not get the proper things from abroad and many industries which would otherwise have developed, had to rest content with a far less, and in many cases, inferior output. The manufacture of machinery is the prime need of India in her industrial regeneration and I would appeal to the great capitalists to turn their attention to this sphere, for, to make India self-supporting in this field would itself be a great step towards her industrial advancement.

## COTTON AND COTTON SEED INDUSTRIES

By—R. K. S.

THE instructive address delivered by Mr. E. C. de Segundo before the Manchester Textile Institute on May 28, 1919, deserves the careful study of cotton growers and cotton manufacturers in our country. It is familiar to every one that the cotton seed was regarded as quite valueless till about the year 1860, when its economic importance was recognised. The value to the United States alone of this once waste product was, just before the war, with an average cotton crop, from twenty to thirty million pounds sterling.

Some 95 per cent of the seed utilised retains however, residual fibre to the extent of from 2 per cent in lightly filled Indian seed to 12 per cent of the seed-weight in American Upland, Uganda and other woolly varieties. This residual fibre is comprised of the "fuzz" proper, some "staple" that has escaped the gin, and other fibres too short to be included in "staple" and therefore called "linters". Each of these products has now a large market in continental countries.

For some time past the "linters" were recovered by saw linting machines and were largely marketed in Germany. But the successful removal of the "fuzz" was a more difficult

problem as it had to be accomplished without any injury to the seed or to the short fibres. The potential value of the "fuzz", it appears, has long been recognised but the attempts to separate it at first gave a product marked by the defect admixture with pieces of seed-shell and foreign matters. Since the year 1909 a machine has been in use which separates "fuzz" in a clean, marketable form free from this defect. Before the war 2,000 tons of the short fibres were imported into Britain for paper-making and during the war 8,000 tons of this "hull-fibre" have been used by one United States firm alone, in making explosives.

In America the residual fibres are removed in three stages. Some 2 per cent (i.e., 15th per ton of seed) is recovered in the saw-linting machine as "linters", about 3 per cent (i.e., 67th per ton of seed) in the seed-defibrating machine as "seed-lint", while some 12 per cent (i.e., 112th per ton of seed) is obtained in the hull-defibrating machine as "hull-fibre". All these products now command very high prices, but calculating on a pre-war basis the three grades aggregate to 44 shillings per ton of seed, if the cost involved is about 10 shillings per ton the net return will be about 34 shillings or roughly Rs 25 per ton of seed.

In Great Britain the entire seed is crushed before the residual fibres are separated. Even then the recovery could be effected, although not so satisfactorily, in the oil-milling operation.

But the advantage would be greatest if defibrating the seed is conducted in the country of origin. Apart from the profit on the "linters" and "fuzz" the diminution in space occupied by the defibrated seed will bring in a saving of not less than 25 per cent in ocean freight. Also the defibrated seed would fetch a better price than the "fuzzy" seed while

the liability of cotton seed to heat during the voyage being diminished there will also result a reduction in insurance rates. It has been calculated that at pre-war rates these factors taken conjointly would mean an increase of 50 shillings per ton in the prices for Uganda seed and about 10 shillings for the Indian seed.

Therefore cotton growers in our country must try their best to cultivate the more valuable worthy varieties while the exporters must direct their attention to utilise the residual fibres to the best advantage.

## EXPERIMENTAL FRUIT-PRESERVING FACTORY.

**T**HE following note concerning the Experimental Fruit-preserving Factory at Coonoor has been prepared by the lady manager —

Fruit-preserving, whether in the form of jams or otherwise, is particularly women's work and it is desired to establish this industry in this Presidency on a firm basis of knowledge and technical skill, whether as a factory or as a domestic business.

To this end Government have sanctioned a factory for the Nilgiris in which organised experiments will be made and fully recorded, including an enquiry into the fruits at present available on and near the hills, into the varieties most suitable for preserving, into the most acceptable preparations and combinations of the several fruits, and into the best methods and recipes. During the past four months this work has been initiated at Coonoor on a domestic scale pending the establishment of a factory with modern plant, and the preserves exhibited are samples from the early experimental work carried out by the lady expert in charge.

The present samples are put up in glass bottles partly because these were the only containers which will display the goods, partly because suitable tin containers and labels are not yet available.

It has been ascertained that a considerable variety of suitable fruits is available though not as yet by organised cultivation. Such are the orange (seville and sweet), the Guava (ordinary, hill, and strawberry), the Pear,

especially the common "stone" type, the Papaya, Tree Tomato, ordinary Tomato, Bilberry (*Vaccinium leschenaultii*), Bilimbi (*Averrhoa carambola*), Tipari (Cape gooseberry), Peach, Quince, Rhubarb, Granadilla and Banana. Apples and plums are at present too scarce and dear for jam manufacture, but can be readily grown. Sample preserves from most of these fruits are here shown.

It is evident that even with these fruits great variety is possible by preserving them singly or in various combinations and proportions, or with different amounts of sugar, or in various preparations such as jam, jellies, cheeses and butters, fruits in syrup, crystallised, etc. At present about 40 recipes have been found successful, of which the results of about 36 are here exhibited. A still greater variety is possible as other fruits become available and when the several fruits are secured in larger quantities, more regularly, and for longer periods so as to admit of more complete treatment.

The supply is at present both precarious and casual and would not suffice for even a moderate sized factory, much is obtained from the jungles and from casual fruit-tree growth, few regular orchards exist, and it is obvious that no organised Fruit-preserving Industry can depend on such supplies. Hence this industry depends ultimately upon a Fruit Growing Industry which is now to be organised and developed throughout the Nilgiris.

## INDIAN STATES.

### Industries in Travancore.

**WE** give below a few of the important schemes sanctioned by H. H. the Maharajah for the Department of Industries in his State —

#### PAPER-MAKING

The raw material exists in large quantities, the chief being linseed stalks which can be acquired in the linseed-growing districts for the cost of collection, as it is stated that some 10,000 tons annually are practically wasted. The cost of transport on the other hand is a more serious matter and comes to a good deal more than the cost of the raw material at its point of origin as the stalks are light and bulky. Here again, therefore, the site of the factory will be conditioned to some extent by the proximity of the raw material. Fuel and particularly water are prime factors in the situation, and accessory materials play a more important part than in the production of alcohol. These materials are chemical reagents such as caustic soda, bleaching agents such as chloride of lime, filling material such as China clay and sizing material such as glue or starch.

The supply of these accessory materials at the most profitable rate will probably involve the starting of further new local industries, e.g., the production of soda and bleaching liquor by the electrolysis of brine, which latter exists in quantities at present unknown in the neighbourhood of Raichur. Glue and starch can probably be manufactured locally, and possibly there may be deposits of suitable filling material such as China clay. It will be seen, however, that in the paper industry the question of accessory materials requires careful examination. The market again is not so unlimited as in the case of alcohol and is at present measured by the quantity of paper imported into the State.

#### BAMBOO INDUSTRIES

The cottage industry to be aided is the bamboo, mat and basket industry of North Travancore. This as an industry that is badly in need of development and is situated chiefly in Alwaye Pakuthy. The Pulayas have a hereditary industry and about 20 families are engaged in basket-making. The baskets are made of reed, cane, bamboo and acia. The

weavers live in dire poverty under cadjan roofs standing on four posts and are generally filthy. They buy bamboos for a few chuckrams and then they go home to weave them into baskets. The men split the bamboos and the women do the weaving. The finishing is done by men. After one-and-a-half days one basket is made and for this six to nine annas is received. The method of sale is haphazard. If local people care to buy them it is sold. If not they wait at the railway station to sell. If unsold they must starve or sell it to the food merchant for a price below the actual value, and this is often done. Thus they are always in the same state of poverty. Recently an attempt has been made to export the baskets. They are of hand bag pattern. This has met with success and export to other parts of India has been done with our help. The total earnings of a worker in constant work are Rs 7 per month. This could be enhanced and the people kept in constant employment, if the industry was organised properly. Here again is the necessity for a Co-operative Depot for the cottage industries highly evident. At the present time these baskets are cheaper and superior to the Japanese articles of the same type on the market, and they need a wider field and advertisement. A depot for instruction in new patterns and collection of goods, etc., on the general lines indicated in our report would be a great boon. Good cane baskets realise Rs 2 to Rs 3, whilst others vary in price up to Rs 1, if made of bamboo six to eight annas is the average price. The Government have sanctioned the opening of a depot here on similar lines to that at Eraniel for weaving.

#### JAGGERY

A demonstration jaggery factory, which will later become a sugar factory, has been sanctioned for Eraviperu near Thiruvella. The machinery is ordered and will be installed and working before next season.

#### MATCHES

A match factory to make use of palmyra leaves and splints has been opened in South Travancore. An expert has been appointed and is now working. Before some three months are over some thousands of people will be working in connection with this as a cottage industry.

### THE LAC INDUSTRY

At first sight it might be thought that the consideration of the lac industry was futile inasmuch as practically no raw stick lac is grown in the State. On the other hand the conditions for its successful manufacture are entirely different from those discussed in the preceding cases. Here we have a raw material of great value and its cost of transport negligible in comparison. The most necessary accessory material in the working up of lac by modern methods is alcohol, and this is exceptionally cheap. There is practically an unlimited export market for lac, as it is used in the manufacture of lints, of varnishes and of gramophone records. In the State itself large quantities can be used for varnish and for

making the customary small round hats so largely worn. The cheapness of the accessory material and the large market for the finished product are the governing factors in this case.

### MATCH-MAKING

This case differs entirely from the other. It is by no means certain that wood of suitable quality will be obtained from the State forests, certainly it cannot be obtained as cheaply as the pine-wood in Sweden. Moreover all the accessory materials such as phosphorus, sulphide of antimony, sulphur, etc., have to be imported and finally the whole present consumption of matches by the State is not more than a small proportion of the output of one typical English factory.

## Industrial Development in Hyderabad

**D**R GILBERT FOWLER, Professor of Chemistry, Institute of Science, Bangalore, has written the following note on the industrial possibilities of the State —

### CONTROL OF INDUSTRIES

In addition to working out the preliminary stages of new industries, the Department is also concerned to watch over at any rate the actual conduct of an enterprise for some time after its launching.

### NEW POSSIBILITIES IN INDUSTRIES

Apart from the consideration of the establishment locally of well-known industries, or of their suitable modification, is the development of entirely new possibilities. This involves a search for new materials or for paying quantities of material already known to exist. Thus, *e.g.*, small quantities of natural oil, of alkali and of salt are known to occur in certain portions of the State. Careful scientific prospecting is necessary before the possibilities can be properly assessed.

Large quantities of various non oxides occur, but whether these can be profitably used for the manufacture of plants, demands careful investigation possibly with the assistance of firms having special experience.

There are many forest and agricultural products which have only been superficially investigated, such as numerous textile fibres, resins, dyes, etc. The investigation of all these new possibilities is part of the function of a Department of Industries.

In some cases it may be found best for the department actually to run the industry for some time until its success has been thoroughly demonstrated and afterwards to hand it over to the most suitable applicant who may be willing to take it up.

In any case it is desirable that sufficient control be exercised by the department to ensure the maintenance of a high standard of quality in the products placed upon the market.

The importance of the maintenance of the standard of quality was indicated early in this note, it is really the key stone of a modern industrial enterprise. The too frequent adulteration or lowering of quality which occurs in this country is not only ethically bad, but extraordinarily foolish. Instances could be multiplied where good openings for trade arose in consequence of the war and were lost through the poor quality and frequent gross adulteration of the goods supplied.

Control by the Department will be welcomed by industrialists when they realise that its object is their help and encouragement, and it will become more a matter of co-operation, than of mere criticism and restrictive action

#### WORK ALREADY ACCOMPLISHED BY THE DEPARTMENT

At the outset the need for a research laboratory and scientific staff was realised and steps were at once taken in this direction. A laboratory for research on industrial problems and for general chemical work in connection with them has now been started and equipped with a staff of young chemists specially trained in the Indian Institute of Science, Bangalore

The higher officials of the Department who were subsequently appointed possess between them technical knowledge of a large variety of subjects, among which may be mentioned actual practical experience on the following lines —

(a) Inauguration and management of large works in India, in England and in other countries

(b) Practical commercial experience both in England and in India

(c) Knowledge both theoretical and practical of mechanical and electrical engineering including manufacture and working of machinery

(d) Theoretical and practical knowledge of the oil and fat industry including the manufacture of soap and glycerine and candles and the preparation of edible and industrial oils

(e) Manufacture of alcohol and allied fermentation products

(f) Technical extraction of resins

(g) Theoretical and practical knowledge of pharmaceutical chemistry

In addition to special knowledge in the above directions the staff possesses a general acquaintance with metallurgical industries, with the paper pulp industry, and with the textile industry, the manufacture of tanning materials, the manufacture of essential oils and sundry minor industries.

The potential resources both vegetable and mineral of the State of Hyderabad are enormous. For their proper development modern methods intelligently directed are required

and for these a bold financial policy is indispensable. In modern industry it is necessary to spend money in order to make money

The Government of H. E. H. the Nizam comments as follows on the above report —

A perusal of the note by Dr Fowler which refers principally to modern industries will, it is hoped, bring home to the public the difficulties and complications involved in the inauguration of large scale industries, and the authority of Dr Fowler will, it is believed, convince them that the final stage of industrial development, i.e., establishment of factories, which the public are so eagerly looking forward to, can only be reached after slow and patient work on the preliminary stages of research and investigation. Any hasty or rash action is bound to end in failure and waste of money, and greatest of all, failure in a single venture would result in a general set back and loss of confidence, which would be highly prejudicial to the industrial and economic interests of the State. Government are therefore determined, *in the interests of the public* no less than their own, to advance cautiously on sound lines even though such a policy might expose them to the charge of being slow. At the same time Government are resolved to spare no trouble or expense in thorough preliminary investigation, and in the case of promising industries all their resources will be freely utilized to develop them up to the stage when they could be safely handed over to the care of private capital and private enterprise

Lastly, Government take this opportunity to note with gratification that notwithstanding serious and unusual obstacles, the Department of Industries and Commerce has done much pioneer work and the way has been prepared for the establishment of factories in due course. Now that the war is over, and the Director of Industries and Commerce has returned from a tour in America and England with full particulars regarding machinery, etc. Government hope to see more rapid development in the directions, which the research and investigation so far carried out by the Department have shown to be profitable, and of which Government will keep the public duly informed from time to time.

## TOPICS OF THE TIMES.

## AGRICULTURE.

## Indian Sugar Commission.

ON November 20th, the Indian Sugar Committee inspected the factory of Purnabpore and Co, Ltd, Purnabpore, Gorakhpur District. Mr A L Turnbull, the General Manager of the Purnabpore Co, in his evidence before the Committee stated, that sugar cane was probably the most important crop in his neighbourhood, but there was a great deal of very poor sugar cane grown. This was due to the fact that much of the cane was planted by men who were not regular cultivators, on unsuitable land. The consequence was that in recent years the district had been greatly troubled by the ravages of the borer moth, which was most active in dry years. The cane generally grown was the hemja variety. He had made experiments with many other varieties, but they had not been satisfactory, and he considered that canes of the Mauritius and Java types were unsuitable for the tract. There was no better rotation crop for cane than indigo. Cattle dung and indigo refuse were the best manures for sugar cane, and he thought that it was out of the question to attempt to supply the native cultivators with artificial manures. He thought there was scope for the introduction of small steam plants for crushing cane, through Co-operative Societies and agricultural banks. He considered that each central factory should have a considerable zone of its own in which to moderate, when cane was bought on the basis of the value established by the Gum market. Payments by Sucrose content was not a practicable method, or one likely to find favour with Indian cultivators. It might be a success in a district in which cane was being introduced as a fresh crop. He considered that the cultivator should be paid for his cane at the central factories, on a basis of what he would get for it—less his expenses if it were turned into Gur. Advances and contracts were not successful methods of arranging supplies, as it was impossible to tell beforehand, when such arrangements were being made, and what the cane would be worth.

## Prices of Food-Stuffs

In the course of a resolution issued this month the Government of India draws attention to the Hon Mr K K Chanda's resolution moved in Council last September and says that they do not think it necessary to comment at length on the report of the Food-stuffs Commissioner. As pointed out in the report, the Government of India up to the date of the outbreak of the war had always refused to adopt a policy of restricting the export of food-grains from India. The abnormal circumstances created by the war compelled them in common with the Governments of almost all countries in the civilised world to resort to an expedient which in ordinary times is open to strong objections. Although the extraordinary high level of prices still prevailing in India makes it impossible for them at present to remove the embargo on export they are fully alive to the necessity of allowing as soon as circumstances permit the export trade in food grains to resume its normal course. A beginning has been made in this direction. It has already been found possible to withdraw either, wholly or partially, the notifications prohibiting the export of certain food-stuffs, such as onions, potatoes and chillies. The Government of India have already announced their intentions regarding the export of wheat, gram, jowar, bajra and various other kinds of grain and pulse, and they hope shortly to be able to make a statement on the subject of their rice policy in 1920.

The report of Mr C A Innes, the Food-stuffs Commissioner, concludes as follows.—There is one other remark which I must make before I close this report. We have just passed through the worst crop failure India has experienced since the famine of 1899-01. The crop failure was complicated by other factors to which I need not refer again, and the prices of food grains were 100 per cent higher than in 1900. Nevertheless, nothing has impressed me more in my numerous tours round India than the comparative absence of visible signs



of distress and the apparent ease with which the people stood up to the unprecedented level of prices. The same fact is commented upon by more than one Director of Agriculture. In the season and crop reports for the year 1918-19 prices were nowhere higher than in the Central Provinces, yet the report records that distress was nowhere really serious or severe and that the agricultural population had come through the period of anxiety extremely well—the report for the United Provinces bears similar testimony. The agriculturists weathered the season without much apparent difficulty, and over a great part of the provinces it is said a degree of protection seems to have been attached which removes the worst danger of a failure of the rains. Famine and scarcity were declared in numerous areas and all the usual measures were taken. It would not have been surprising if the circumstances of this disastrous year had been reflected in famine returns, but as a matter of fact the numbers on relief were never very large. In 1900 the maximum number on relief at any one time was 6,32,211. In 1919 it was 565,348. In the five years rupees were absorbed in India at the rate of 2008 crores per annum as compared with an average of 878 crores in the preceding quinquennium. As pointed out by the Hon. Mr. Munt in his speech in the Legislative Council on the 17th September the balance of trade as deduced from the excess of exports of merchandise over imports minus private imports of Treasure and Council Bills was against India in the five years ending 1913-14 to the extent of 23 lakhs per annum. In the five years of war the balance in India's favour averaged 2080 crores per annum. These figures point to an increase of wealth in India, and the history of the year, which is just over, indicated that no small portion of this wealth has passed into the hands of the cultivator. At any rate the most hopeful feature of a year which otherwise was disastrous is the clear evidence it affords of India's increasing power to withstand a crop failure.

#### Cultivation of Plantains.

I do not think that those who are engaged in the cultivation of the above product, ever give a thought to the fundamental principle which governs the proper cultivation of one of

the most popular and wholesome fruit, that can be grown all throughout the year. Quantity and not quality is the chief aim of the big cultivator, while no desire, to improve the quality, flavour or size of the fruit is thought of, hence, we find in the market an undersized insipid lumpy unmaturing type of plantain— invariably harvested before the proper time. It is worthy of note that of all the fruit trees in the *World* the plantain tree yields the largest produce per acre and brings in a *very* profitable return. Another point is that fruit experts declare that the chemical constituents of the plantain fruit are precisely the same as those of milk, and that the plantain is the *most* nutritious and *most* easily digested of all fruit.

The writer of the following few simple hints wishes to state that he does not want to pose, as some great Scientist, propounding some new theory, but is desirous of arousing the interest of cultivators and those interested in this particular product and to draw the kind attention of those interested in fruit culture in general, especially those most interested in this most popular fruit, who *may* have followed the hints herein mentioned, but in an indifferent manner, and not to its entirety, and also those who are in search of a hobby, who might, with advantage, improve the cultivation of the few trees growing in their own compounds.

It is a matter for regret, that in a place like Bangalore, where there is a large military and civilian population and plenty of boarding schools, that one is only able to procure, with great difficulty, only the commonest variety of plantain, known as the acid plantain, or Poovan as it is called in Tamil, when with a little trouble, a little interest and a little extra expense one can grow a *number* of varieties of better size and flavour with greater profit to the grower.

The plantain tree commences to bear fruit about the 10th to 12th month. When the fruit commences forming, it would be noticed that the inflorescence reduces in size by degrees, this inflorescence hanging on should be cut off and a fairly heavy stone, about the size of half a brick should be tied at the cicatrix. All suckers should be dug up and planted elsewhere. This should be kept up and not one sucker left when the tree is in bearing. Care should be taken when digging up the suckers,



not to injure the parent tree. All the nourishment that hitherto was taken up by the suckers will now be transmitted to the bunch of plantains and the weight of the stone as previously mentioned, will help to further draw all the nourishment down to the hanging bunch. When the plantain tree is three months old the following mixture, which is the quantity for 50 trees, should be applied round each tree—

Castor cake	25 lbs	Bone meal	20 lbs
Nitrate of soda	20 „	Wood-ash	15 „

The last named can be continuously applied about 2lbs to each tree once a month, this can easily be collected from the fire-place in the kitchen for those who are experimenting on a few trees, of course. The writer feels confident that, if the above few simple hints be followed in their entirety and the trees manured with the mixture recommended, anybody who tries it will be amply rewarded for his trouble. The trees should be watered regularly, morning and evening, before the sun rises, if possible, and after it sets—*The Planter's Chronicle*

### Artificial Manures.

#### RESULTS OF BOMBAY TESTS

THE Department of Agriculture, Bombay, has issued a Bulletin (No 89 of 1919) describing the experiments on the value of artificial manures for crops in Western India

### Tobacco.

CONDITIONS—On the Deccan, with irrigation in reserve to use if the rains are insufficient and with land in fairly good condition

DRESSING—	lbs
Sulphate of potash	150 per acre.
Superphosphate	112 „
Nitrate of soda	245 „

This will pay if it costs less than Rs 65 per acre

### Potatoes.

CONDITIONS—Applied on the Deccan to the crop in the “rabi” season with irrigation

DRESSING—In addition to the farmyard manure usually given

	lbs
Sulphate of potash	150 per acre
Superphosphate	112 „
Sulphate of ammonia	120 „

### Cotton

CONDITIONS—The rainfall must be regular and reliable practically during the whole of the growth of the plant up to flowering

DRESSING—Either of the following methods—

- (1) (a) two tons farmyard manure per acre, ploughed into the land before the seed is sown,  
 (b) two hundred lbs superphosphate per acre put in along with the seed,  
 (c) one hundred and thirty-five lbs of nitrate of soda or one hundred lbs. of sulphate of ammonia topdressed six weeks after sowing
- (2) (a) two tons farmyard manure per acre ploughed into the land before the seed is sown,  
 (b) a mixture of 200 lbs of superphosphate and 125 lbs nitrate of soda or 100 lbs of sulphate of ammonia put in with the seed

### Sugarcane.

CONDITIONS—Good thick canes on well prepared land with abundant irrigation in the Deccan

DRESSING—

- (1) Thirty-five cartloads of farmyard manure with 224 lbs. of superphosphate and 300 lbs of sulphate of potash to be applied before the field is ridged up for planting
- (2) One thousand two hundred lbs of a good quality of safflower cane or the equivalent quantity of another cane, and 375 lbs of sulphate of ammonia to be applied at the time of cutting up the cane.

### Chillies.

CONDITIONS—Irrigated chillies in the Deccan.

DRESSING—In addition to the ordinary local dressing of farmyard manure usually given—

	lbs
Sulphate of potash	180 per acre
Superphosphate	112 „
Sulphate of ammonia ...	60 „

or

Nitrate of soda	75 „
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This should be applied as a topdressing to transplanted chillies about one month after transplanting the chillies.

**Onions.**

**CONDITIONS**—Land should be in good condition and the onions transplanted must be healthy

**DRESSING**—In addition to the ordinary dressing of farmyard manure of, say, 20 cart-loads or 9 tons per acre—

	lbs
Sulphate of potash . .	56 per acre
Superphosphate	112 "
Nitrate of soda . .	255 "
or	
Sulphate of ammonia	255 "

This should be applied to the transplanted crop

\* \* \*

**Bananas (Plantains).**

**CONDITIONS**—On the Deccan or near Bombay

**DRESSING**—

Castor cake	1 to 1½ lbs
Sulphate of ammonia	½ lb
Sulphate of potash	7/10 lbs
Superphosphate	15 "

This mixture may be used either as a complete dressing when the full quantity indicated should be applied to each plant in three doses at monthly intervals, commencing one month after planting. It may also be used, without oilcake, to supplement an organic manuring with farmyard manure of poudrette at the rate of, say, 2 lbs per plant applied in two equal dressings, respectively, one and two months after the planting of the plantains or after the suckers commence growing independently.

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**Agricultural Enterprises**

British agricultural engineers are taking certain definite steps to secure the increased production so essential to meet foreign competitors with success in all the world's markets.

To a certain extent the moulders' strike has interfered with the progress of the different schemes in hand, but this is regarded as a temporary matter only, and cannot seriously upset the plans conceived

In the first place, mass production and scientific salesmanship are being adopted almost all round. It is not untrue to say that with certain notable exceptions British agricultural engineers were not up to date in actual engineering practices before the war, nor did they appear possessed of a surplus of initiative. The war seems to have changed all that, and it may not, after all, prove entire loss that many firms were compelled to manufacture munitions, for it got them out of ruts by giving them an opportunity of demonstrating what they could do in other directions than the old standard lines. One result is that to-day agricultural engineering is invested with a new vitality.

Standardisation is the great keynote of trade plans to-day. Certain amalgamations have taken place to secure this end, and they represent powerful forces in the struggle, while, apart from these, there are many working arrangements being entered into. The feature of the whole situation is that where a firm cannot manufacture a side-line on mass production methods, and its continuance interferes with successful concentration upon the leading lines, agreements are being entered into by firms possessing a working understanding, and each particular house is becoming freer every day to specialise in given articles.

The vital thing, however, is that results to date show to the British agricultural engineer he can favourably compete with the best American house price for price, and certainly quantity for quality.

The tractor industry had the handicap of an enforced belated entrance into the field. Elsewhere there is an optimism born of the knowledge that, given adequate support by labour, the British firms have inviting prospects. At least five of the largest firms have arranged to increase their output tenfold during the coming year, and others, having beaten the Americans on price for their heavier lines, particularly in farm power oil-engines, are now determined to do the same in the smaller categories. The spirit of industry in this branch of engineering, therefore, is now very much alive.—*Times*

## INDUSTRIES.

### British Industries Fair of 1920.

**T**HE British Industries Fair of 1920, which will be held from February 23 to March 5, will be on a scale commensurate with the magnitude of British industry and the largest yet held. Though there will be three Fairs in different towns—London, Birmingham and Glasgow—they will in reality be only separate sections of one big Fair. At each of the five preceding Fairs held in London, firms who were mainly engaged in the production of war requirements were prohibited by the Board of Trade from exhibiting.

The Board of Trade has arranged that in each of the three sections there will be different groups of industries, in order that buyers may not have to go to more than one Fair to purchase the goods they require. Exhibitors have been called upon to send in to a special branch of the Board of Trade the names of the *bona fide* trade buyers they wish to invite, and these names having been collated and indexed, about 100,000 invitations will be issued for the London Fair alone.

The London Fair will be held at the Crystal Palace, which is the largest exhibition building in the world. The trades that will be represented at the Crystal Palace are—Cutlery, silver and electro plate, jewelry, watches and clocks, imitation jewelry, including hand hibernashery articles, glassware of all descriptions, china and earthenware, paper, stationery, and stationers' sundries, printing, fancy goods, including travelling requisites and tobacconists' sundries, leather for the fancy goods, bookbinding, and upholstery trades, hushes, toys and sport goods, scientific instruments, optical goods and spectacle wire, photographic appliances and requisites, drugs and druggists' sundries, musical instruments, furniture and art needlework requisites.

### German Dye Industry.

The eight German chemical companies which since 1916 have formed the enlarged community of interests in the heavy chemical industry, including the production of aniline dyes, have convened special meetings of the shareholders in order to submit proposals for increasing the share capital. Apart from new preference

capital, which is to be interchanged between the companies so as to render their relations of a more intimate character and fortify their competitive capacity in external markets, the aggregate amount of the combined new issues of ordinary capital is 380,000,000 marks, which would represent £19,150,000 if the mark were at its normal value. In fact, each company is virtually to double its ordinary capital.

The proposed increases in the ordinary share capital, which are to be taken over by banking syndicates and then offered to existing shareholders at 107 per cent are to be made in instalments, partly this year and partly during next year.

### The Industrial Court Bill.

In the Commons, Sir Robert Horne moved on November 6th the second reading of the Industrial Dispute Bill, which was passed unanimously, the features of which are: Provision for a permanent Industrial Court of Enquiry and the dropping of compulsory arbitration existing under the present Act, the Bill also provides for the continuance of war time rates of wages till September, 1920. The reason why compulsion had been dropped was that the employers objected to the clause empowering the workmen to compel the employers to accept arbitration in wages disputes, and to abide by the decision, whereas there was no corresponding compulsion on the workers to abide by the decision. Labour objects to being made the subject of compulsory arbitration, hence it had been dropped. Sir R. Horne, however, defended Labour against the suggestion, that the objection was because they desired to evade the awards. He pointed out that in the last eleven months the *interim* Court of Arbitration decided 863 cases, and only in three had there been a strike against the award. Moreover, he declared that compulsion had largely failed in Australia and Canada because, in his opinion, the people were not ready for it.

### Aniline Dye-stuffs.

A Geneva correspondent writes that the exported aniline dye-stuffs in the first six months of 1919 amounted to 2,903 tons, against 2,794 tons in the first six months of

1918 This increase came quite unexpectedly Great Britain was the chief buyer, having bought 30 per cent of the Swiss export The next buyers are France, who took 21.1 per cent, Italy, 13.2 per cent, and the United States, 12.0 per cent The export of pharmaceutical goods, which are made by the same factories, increased by 48 per cent during the first six months of 1919 compared with the same period of 1918 Countries like Poland, Bohemia, Austria, and Scandinavia, in which German products had a monopoly before and during the war, address the Swiss industry

Swiss chemical manufacturers are convinced that those competitors of Germany who developed their production during the war on a really scientific basis, will not have to fear Germany's competition In Switzerland it is only the restless abusers of the lack of German goods who brought worthless substitutes on the market, who will have to suffer from Germany's recovery after the war Those manufacturers who started the production of German specialities, systematically and scientifically developing their pre-war production, view quite calmly the future struggle

#### **Commercial Outlook in South Africa.**

Leather goods are in strong demand and prices of both local and imported leather show an upward tendency Boot and shoe manufacturers throughout the Union are exceptionally busy Stocks are low, especially in children's footwear One large firm anticipate trebling their output within the next few months by the installation of new machinery Makers of the machinery are sending out experts to train operatives here, and the consequent improvement in the finish, it is anticipated, will result in a larger demand for the South African article There still exists an acute shortage of skilled labour Harness makers are fully employed and can do with more hands than are at present available

Clothing factories are unable to cope with the present heavy demand Prices are advancing and there is little immediate prospect of the present low stocks of cloth being augmented by supplies from overseas While there is an increased call for the better class goods, inquiries for cheaper grades are comparatively

few, and it is unfortunate that the quality of cloths now arriving from the United States is poor, this being the trade's chief buying ground at present, owing to the inability of the English mills to undertake orders Spinning and weaving operations are being started in Cape Town shortly, and clothing manufacturers hope to be able to purchase supplies of locally manufactured cloth at prices considerably below those ruling to-day for the imported article — *Monthly Review*, Cape Town

#### **A Cure for Industrial Unrest.**

Dr William Mayo, President of the American College of Surgeons writes —

The lengthening of the span of human life has been put forward as a remedy for social unrest and a means for increasing production Since the close of the Civil War, 15 years have been added to the length of human life, and in the next 20 years it is certain that another 10 will be added When he was a boy it was difficult for a man of 40 to find a new job, and for a man of 50 it was impossible To-day the older men were great assets to the country Their skill and experience counted for much They were less inflammable, and had family ties and responsibilities, so that they were less under the influence of violent agitators

Another great factor in the progress of the world has been the supply of drinking water to cities and nations The introduction of potable water has made prohibition possible Prohibition will enormously increase production The failure of France and Italy to supply potable water necessitates the continuance of wine drinking, just as in Germany beer drinking will continue Alcoholic drinks loosen the control which civilisation has imposed over the primitive impulses of man

But the arch foe of middle life and beyond, was cancer, and measures both for prevention and cure had not advanced in proportion to the need One woman in nine, and one man in 13, died of cancer Good dentistry had eliminated the percentage of cancers of the jaw caused by irritation from defective teeth, but cancer of the lip and tongue was on the increase as the habit of smoking increased among both sexes

## RESEARCH AND INVENTION.

### Invention of the Tanks.

**T**HE Royal Commission on Awards to Inventors has reported, says a London telegram, of November 27, regarding the various claims in respect of the "Tanks." The Report records that it was primarily due to the receptivity, courage, and driving force of Mr Winston Churchill, that the general idea was put into practice. The Report attributes the principal credit for the designing and the production of the "Tank" to Sir William Tritton and Major Wilson to whom fifteen thousand sterling is jointly awarded. Major-General Swinton is awarded £1,000. The report recognises that of still greater value was his work of advocacy of the "Tank" for which a pecuniary award is inappropriate. Another claimant is awarded £1,000, and two others £500 each. Some claimants are disqualified, because investigation was within the scope of their duties. Mr Tonnyson D'Eyncourt is awarded £1,000. The Commission exceedingly regrets that it is unable to recommend an award for a West Australian named De Mole, who is entitled to the greatest credit for reducing to practical shape in 1912 a brilliant invention which anticipated and surpassed, in some respects, that actually utilised in 1916, but which was put aside because the occasion for its use had not then arisen. The Commission, however, is bound to adhere to the general rule requiring causal connection between making the invention and the Government's use of any similar invention.

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### Binder Twine made from Flax Straw.

Results obtained from experiments which are being conducted at Ottawa by the Dominion Government indicate that flax straw grown in the Province of Saskatchewan for linseed purposes only can be utilized for the manufacture of binder twine and coarse cordages.

Nearly two years ago, as a result of experiments carried on under the auspices of the Saskatchewan Provincial Government, it was shown that there was a possibility of the fibre of flax cultivated for seed being so utilized. The difficulty in the way of putting the industry on a commercial basis was the absence of a machine which would thresh the straw

without destroying the fibre. Thanks to the efforts of the flax specialist at the Dominion Experimental Farm at Ottawa, a machine has at last been produced which solves this problem, binder twine having been manufactured possessing the necessary tensile strength.

If in the actual process of manufacturing the results are as satisfactory as the experiments at Ottawa indicate they may be, it follows that a two-fold benefit will accrue to the farmers of the prairie province in general as well as those of Saskatchewan in particular. In the first place, it will provide a marketable outlet for the flax straw, while in the second place they will be able to obtain their supply of binder twine at home instead of importing it.

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### New Iron making Process.

A correspondent writes in the *Times*—

A noteworthy development in the iron and steel trades concerns the production of pure iron, or iron so near absolute purity—99.84 per cent—as to be regarded as pure. It is equal, if not superior, to Swedish charcoal iron upon which we have been so dependent, while it can be produced with the facility of common steel upon an equally extensive scale and at a competitive figure. The possibilities of the product and process were illustrated during the war. High speed tool steel, for which Swedish raw materials were employed, was in heavy demand, immense quantities being turned out in Sheffield to satisfy the requirements of the establishments devoted to the manufacture of munitions. As is well-known, a hitch occurred between the British and Swedish authorities concerning the materials to be shipped from the latter country to these islands in exchange for our coal. Our proposals failing to be acceptable to the Swedish interests the exportation of charcoal iron and ore was stopped.

### WAR TIME PRODUCTION.

It was feared that this interruption would exercise an adverse effect upon the production of munitions by creating a dearth of high speed tool steel. But experiments proved that the pure iron made from the Cumberland and other native ores was a superior base to

the imported product for the preparation of the article in question. Forthwith the production of the pure iron was pushed forward, the result being that this base was turned out in a steady regular stream of 200 tons per month, which proved adequate to keep the Sheffield works fully engaged in working up the requisite product. Consequently no shortage in a vital material was experienced as doubtless the Swedish interests imagined would be the case.

It was also found suitable to the production of telegraph and telephone wires, for which copper had hitherto been employed. Its high electrical conductivity and durability rendered it useful in this connexion, and thousands of miles of wire for these purposes were turned out. As a matter of fact the original search for this pure iron was the direct result of the encouragement extended by the United States Board of Agriculture, which offered a prize for a wire fencing superior to that then obtainable, to placate the agricultural interests, who complained against the short life of the wire available for enclosing their ranches. This fencing corroded so rapidly as to compel frequently recurring expenditure upon renewals. With the pure iron wire fencing replacement is essential only at long intervals, this metal having completely solved the problem.

#### ENDLESS VARIETY OF USES

To day, the pure iron is being utilized for an endless variety of purposes. When rolled into sheets it assumes an excellent surface for galvanizing, painting, or enamelling. In galvanizing it takes the spelter more readily and evenly, the percentage of wasters being insignificant. It has been demonstrated that it is well adapted to enamelling both in the flat and when fashioned into varying designs as, for instance, culinary utensils. One of the largest firms in this country already quotes a lower figure for enamelling pure iron than any other metal owing to the readiness with which it takes the enamel as well as the saving in labour, time, and material, and superior finish obtained.

#### Harnessing the Rhone

France has resolved to exploit the large possibilities of the Rhone, her greatest river, and the *Times Trade Supplement* publishes a description of the scheme. Conflicting interests have

been reconciled and the benefits so distributed that the estimated cost of £100,000,000 can be provided by the beneficiaries, including the State. The projected works, which extend from Geneva to a point a few miles north of Tarascon, will take many years to complete. The three main objects of the scheme are the improvement of transport, the production of electric power, and irrigation. When the locks and deviations have been made, barges of 1,200 tons will be able to pass from the Mediterranean to Geneva by Lyons. The Rhone valley will resume its ancient claim to be one of the great highways of Europe. It appears that no extensive works are contemplated below Tarascon, and the river is already navigable for heavy barges from that point to the desolate but well equipped Port Louis du Rhone. The total fall from Geneva to the sea is over a thousand feet and it is calculated that the utilization of this water power will produce as much electricity as would come from 5,000,000 tons of coal. There are to be nineteen generating stations of from 200,000 horse power for lighting, heating, and factories, each station supplying an area proportionate to its power. Lyons and Marseilles and the P. L. M. Railway will be the largest consumers. Irrigation on a very large scale will become possible. Vast regions with productive soil and kindly climate require only water to turn them from arid sterility to plenty. The benefits obtained in the valley of the Durance will be repeated in the great plains of the Camargue and the Crau.

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#### Armstrong Locomotives.

Mr W G Armstrong Whitworth and Co., Ltd., have developed a new line in their business by converting their Scotswood Munition Works into a locomotive works.

At the date of the armistice the Scotswood works were entirely devoted to the production of munitions of war. Enormous quantities of shells of every calibre from the smallest to the naval projectile of over a ton weight were produced, the output during the period of hostilities reaching to the unprecedented total of 14,500,000 shells, in addition to vast numbers of cartridge cases, fuzes, etc. Under the firm's reconstruction scheme the Scotswood works were selected for the manufacture of locomotives, and one of the most remarkable transformations ever effected was at once put in hand.

## TRADE.

### THE COMMERCIAL MUSEUM OF CALCUTTA ITS CONSTITUTION AND WORK

**T**HE Commercial Museum has been organized as a part of the Commercial Intelligence Department with the object of bringing Indian manufacturers into touch with firms and individuals interested in their products. The display of a fairly large collection of samples in one centre has assisted to promote the objects as regards actual visitors to the Commercial Museum, whereas the supply of the catalogue, postage free, in response to applications which are constantly received, serves to bring the manufacturers into touch with traders throughout India. The latter, in most instances, are probably not even aware of the existence of the smaller manufacturers, who either can ill-afford or are not enterprising enough to push their trade by advertisements in any of the leading newspapers. A new edition of the catalogue is issued every year before the stocks of the last edition are exhausted, a supplementary catalogue being issued in the *interim*. A departmental circular letter is issued to all exhibitors asking them to intimate their revised prices if any. Particulars regarding the Commercial Museum are advertised in the *Indian Trade Journal*, the weekly organ of the Commercial Intelligence Department. Order books are also maintained in which orders may be registered by visitors direct with the manufacturers or their respective agents. A fairly large number of orders have been placed with the exhibitors through this medium, the Commercial Museum being merely a free clearing house as it were. Any complaints received from indentors regarding non-execution of orders or the supply of articles obviously inferior or different to the samples exhibited are promptly taken up with the exhibitors concerned.

The policy that is adopted in the Commercial Museum is to exhibit free of any charge such articles of Indian manufacturers as are acceptable, and to embody them in a catalogue which is issued gratis to *bona fide* inquirers. Manufacturers are expected to forward their samples free of charge in view of the fact that the Commercial Museum is in effect in the

nature of a permanent advertisement and manufacturers are thereby afforded the means of extending the scope of their business. Samples of all qualities of the classes of articles exhibited are accepted without preference being shown to any individual manufacturer, the only condition being that exhibitors must be able to manufacture on a commercial scale the articles exhibited. The exhibits remain the property of the exhibitors and are returned at any time, if so desired by them, or if it is subsequently ascertained that articles similar to the samples can no longer be supplied. Owing to the accommodation being limited at present, the scope of the Commercial Museum is practically limited to manufactured or semi-manufactured goods produced on a wholesale scale. Exhibits are collected at the Commercial Museum at Calcutta by means of a departmental circular letter which is issued to all known manufacturers of the classes of articles selected for exhibition. Samples are also obtained by the Curator coming personally into touch with manufacturers or exhibitors at the more important exhibitions which are held periodically in India. Exhibits are, moreover, furnished by unknown manufacturers, who offer their samples for exhibition as the result of the establishment of the Commercial Museum being more widely known.

Pending the selection of a permanent building, the museum is temporarily located in the Commerce and Industry building. The accommodation in the museum for samples of Indian manufactures consists of a large hall and verandah, the total dimensions of which are 4,096 square feet. In addition an adjoining room measuring 597 square feet is utilized for exhibiting samples of some of the principal qualities of goods imported into the Calcutta market, with which Indian manufacturers have to compete, and also samples of some articles imported by consuming departments of Government. The former are exhibited for the benefit of manufacturers who are interested in them, and it is hoped that by giving publicity to the latter it will be possible to find local sources of supply already in existence or to encourage their local manufacture. In addition samples are exhibited of



articles largely imported into South Africa and the Persian Gulf, which have been received from His Majesty's Trade Commissioner at Cape Town and the Political Agent at Bahrein, respectively. These samples are exhibited with the object of bringing to the notice of Indian capitalists the demand that exists for an export trade in them in the hope that they will be induced to undertake their manufacture.

The Commercial Museum has undoubtedly served the purpose of bringing forcibly before traders and other visitors a large number of articles manufactured in India, which have been a revelation to many. The smaller manufacturers in particular whose wares are exhibited have derived considerable benefit inasmuch as they have received orders and inquiries which they would not otherwise have received. As articles are not sold in the Commercial Museum, order forms were introduced for the convenience of visitors who may not care to take the trouble to write and place small orders with the manufacturers direct.

The practical experience gained during the past three years from the many enquiries received and the complaints made by visitors in regard to non-execution of orders placed is that the demand for many articles of Indian manufacture exhibited in the Commercial Museum is far greater than the limited supply. The large industrial concerns, such as the cotton, woollen and paper mills, have been unable to accept orders owing to their having been either engaged with Government contracts in connexion with the war or well booked ahead with orders. The smaller industries consisting of bangles, brushes, buttons, combs, cutlery, glassware, matches, pencils, pottery, etc., have not for one reason or another been able to expand their outturn to meet the large demand. Moreover, the supplies of 'fancy articles' exhibited by small manufacturers, which may be classed as 'cottage industries', are too small and irregular to encourage the placing of large orders. Another factor that militates to some extent against encouragement of orders with small manufacturers in particular is that articles ordered are supplied on the value payable system and the experience of some indentors is that articles received are often not similar in quality and design to the samples exhibited.

Several visitors to the Commercial Museum have expressed a desire to do an export business in certain descriptions of Indian manufactures, but as the outturn of the majority of exhibitors is unfortunately insufficient to cope with the demand in India it is unlikely that they will be in a position, for some time at any rate, to accept orders for export. There is also evidence on record in the Commercial Intelligence Department that there is a large and growing demand from firms in the United Kingdom, Canada, Australia and United States of America for Indian hand made lace and embroidery if they could be supplied in wholesale quantities.

From the foregoing it is apparent that the Commercial Museum has by no means suffered from lack of patronage or from paucity of orders placed with exhibitors. On the contrary, a fair amount of business has been refused owing to manufacturers not having been in a position to develop their industries to meet the increased demand. The Commercial Museum has also been useful to many traders as an Inquiry Bureau as inquiries are frequently made by visitors in quest of information regarding raw products or other commodities which are not exhibited. In such cases the information available on the subject from the records in the Commercial Intelligence Department is promptly obtained and furnished to the inquirer. The Commercial Museum has, moreover, been a very useful adjunct to the Commercial Intelligence Department in ascertaining information in regard to inquiries received on various subjects relating to Indian manufactures, and also incidentally in acquiring information from visitors regarding the commercial possibilities that exist for various articles both in India and for export overseas. It has in addition helped to make the Commercial Intelligence Department more widely known than it was before the Commercial Museum was organized.

#### **Possibilities for Trade with Persia.**

In the course of an interview with His Excellency Shaukat-ul-Mulk the Governor of Seistan, the representative of the "Daily Gazette" learned that the Quetta-Nushki railway has now been carried forward to Buedab on the Persian frontiers, about thirty miles south of the south-western point of the



Afghan frontier, and about 120 miles south, and slightly west of Nasratabad (or Seistan) the capital town of the Governor's province. He is very optimistic as to the future of Persia, and the effect of the Anglo-Persian agreement, if Persians utilise their opportunities. He is also convinced of the great possibilities for the extension of trade between India and East Persia, as soon as the Nushki Railway which is at present used for purely military purposes is made available for mercantile traffic. From the present terminus of the line, there is a good motor road through Neli and Bijand to Mched in the extreme north and another road to Keriman which is about 210 miles west-north-west of Buzdah. Asked about the possibilities of the railway developments in East Persia, His Excellency pointed out the advantages of the line from Duzdah north-ward near the frontier which would tap the fertile districts around the Herat, the granary of Central Asia.

### **The Trade of Japan.**

Japan's foreign trade for the nine months, from January to the end of September was 1,377,820,000 yen in value for exports while the value of imports was 1,584,048,000 yen, representing an adverse balance of 206,228,000 yen. For the same period last year export amounted in value to 1,384,531,000 yen, and imports to 1,225,809,000 yen, leaving a favourable balance of 158,722,000 yen. The general expansion of the nation's foreign trade, however, is seen from the fact that last year the total foreign trade for the nine months amounted in value to 2,610,340,000 yen, while for the same period, this year it totalled 2,961,868,000 yen, though the difference is more on account of abnormal prices than increased volume of trade.

### **Japan and Britain.**

In the House of Commons on November 21, Sir Auckland Geddes stated that he saw no reason at present to fear that British manufacturers would be unable to hold their own in competition with the Japanese. The enormous increase in the importation of goods from Japan during the war was wholly artificial. He deprecated the belief that these goods would hold the British and other markets

when they were again subject to British competition. There was already every indication that the markets which Japan had apparently gained during the war were hungering for British goods.

### **Commercial League of Nations.**

The following scheme adopted at the International Trade Conference at New York will be read with interest —

To promote international commerce, facilitate commercial intercourse of nations, secure harmony of action in all international questions involving commerce and industry, and to promote peace and progress by cordial relations between countries and their citizens by the co-operation of businessmen and their associations devoted to the development of commerce and industry.

It further agreed that no nation may belong to the Business League which is not a member of the League of Nations. This is interpreted as a general endorsement of the League of Nations Covenant by the businessmen of the world.

The scheme for representation on the new body is based on the formation, in each member country where such an institution does not already exist, of a national Chamber of Commerce similar to the United States or British Chamber of Commerce. These bodies will each send two members to central body corresponding to the Council of the League of Nations, which will have permanent headquarters at a place to be selected later.

One of the functions of the International headquarters will be to gather business and industrial data for use by all members of the League.

### **How Indian Trade is Financed.**

A correspondent writes as follows in the *Business Organisation and Management* —

The financing of the Indian trade, as we know it, is undertaken chiefly by the Exchange Banks, all of which have branches in both London and India, and, as far as we are concerned, there are two sides to the business, the financing of exports from this country to India, and the financing of the Indian imports into the United Kingdom.

Let us take the first case, that of the exporter who wishes to send merchandise from, say, England to Bombay. He may obtain payment for his shipment in one of several ways. He may elect to draw a bill on the Indian importer and send it direct to India for collection through one of the banks. In that case he will prepare his bill of exchange, attach to it the necessary shipping documents, comprising bill of lading in triplicate, invoice and insurance policy and hand them to the banker. The banker will send them by mail to his Indian agent, ask him to present the bill for acceptance or payment, and in due course, when the rupees are received, the Indian bank agent will remit the sterling equivalent to London to be paid over to the drawer of the bill, less, of course, the usual charges, say 1 per cent for commission, plus a charge of 2s for postage which it is customary to make on all bills for amounts under £100. Then there will be Indian bills stamps to pay for, and a few other little incidents.

This method of finance is quite all right if the exporter is in no hurry for his money and is content to await the counter-remittance from India, but, if he is anxious to get his money at once, he will sell the bill outright to the banker, or, alternatively, the banker in London will advance a certain proportion of the amount of the bill and will account to him for the balance in due course. In this case, however, the banker pays careful regard to the names on the bill, to wit, that of the exporter, who is the drawer, and that of the importer who will be the drawee of the bill. If these men are of good repute (and it is the banker's business to know whether they are), and if they are of sufficiently good financial standing to warrant his advancing on the bill there will be no difficulty. Generally speaking, however, bankers' purchases of bills are made under an authority given by the Indian importer. It is a form of credit utilised more particularly when a series of transactions are to be financed, and, without going too deeply into the matter, we may briefly describe it in this manner. The Indian importer goes to a branch in Bombay of say, the National Bank of India, asks the banker there to mail or cable home to his London Office an authorisation to purchase the bills of John Jones upon him, Cashier Havalby, the Indian importer, up to a certain fixed

amount, accompanied by shipping documents for a quantity of say, piece goods, to be forwarded to India between certain dates. When he receives this authority the banker in London informs the exporter of his willingness to take the bills if drawn in compliance with the terms laid down in the authority sent home from India. With this authorisation in his hands, the banker is ready to make advances, which, by the way, are on the joint responsibility of the importer and exporter, on presentation to him of bills of exchange and complete shipping documents.

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#### India's Export from U. S.

Replying to Sir Frederick Hull in the House of Commons, Sir Auckland Geddes stated that India's exports from the United States for the three months ending the 30th of June had increased by twenty-eight million rupees compared with the corresponding period of 1918, while imports from Britain had decreased by twenty million rupees.

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#### Trade with Germany.

About 18 months ago the Textile Trade section of the London Chamber of Commerce passed a resolution deciding to have no trade relations with Germany for at least 10 years. Another resolution to exactly the opposite effect, expressing the opinion that resumption of business with Germany and other enemy countries should be regarded as properly open to members of the section was proposed by the same mover. Consideration of the motion was deferred for some time.

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#### Foreign Trade Policy.

It is officially announced that, in pursuance of the recommendations of the Majority Report of Lord Cave's Committee, the administration of the Consular Department of the Foreign Office has now been transferred to the Department of Overseas Trade, which already administers the Commercial Diplomatic Service. The staff of the Consular Department will for the time being remain in the Foreign Office, but in all matters relating to the Consular Service will report to the Secretary of State through the Comptroller-General and the Secretary of the Department of Overseas Trade.

## FINANCE.

### Gold For India.

**G**OLD to the value of four hundred thousand dollars has been engaged for export to Bombay—says a New York message dated Nov 23

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### Conference in London

"Fight the Famine" Council comprising British and European economic experts, to consider the measures of alleviation, held its first public session at Caxton Hall on Nov 6th Sir George Paish declared that Europe was never so menaced as at present Poverty in Germany was so great that there might be an explosion at any moment, which might destroy not only Germany but France, Italy and Britain. The way to restore France was to restore Germany. Another danger was that the world's credit would break down, as the credit of Europe was to day breaking down. The meeting passed a resolution urging the Government immediately to take whatever steps the situation demanded

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### Fall in output of Silver.

Mexico, the United States, and Canada are by far the largest producers of silver, and the main factor in the decrease in world's output is the fall of Mexico's exports from 87 million ounces in 1911 to 38 million ounces in 1916. Silver production in the United States was maintained during the war period at an average of 74 million ounces a year, but there was not the steady increase that had been going on year by year prior to 1914

Canada's production, too, has fallen from over 32 million ounces in 1911 to 22 million ounces in 1917, whilst Australia, formerly the fourth largest producer, yielded only a little over four million ounces in 1916, as compared with 17 million ounces in 1911

### INCREASED DEMAND

The high price of silver which now prevails (the highest for nearly 50 years) may thus be attributed to a diminution of the available supplies. But there have been other contributory causes, including an increased demand in several directions. The Royal Mint has coined exceptionally large quantities of silver during

the war, and other European countries also have increased their silver coinage. In ordinary times India absorbs silver for coinage, for personal and other ornaments, at the net rate of 60 million ounces a year. During the last two years the Government of India has coined much larger quantities of silver than usual.

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### Exchange and Currency.

As much public interest is being taken in the settlement of the problem of exchange and currency and as the Currency Committee will shortly publish their report, we give below the opinions of three gentlemen, who are competent to speak on the subject. We need hardly say that we do not necessarily agree with their views

PROF GILBERT SMITH

I beg for careful consideration of the proposal which I have been urging in India, that the rupee be stabilized at its present value of 2s by making £1 currency notes legal tender in India at Rs 10 and 10s currency notes at Rs 5. The bearing of this proposal on the American exchange makes it necessary that it should be discussed from the British as well as from the Indian point of view

It may be asked whether if the Indian exchange can thus be stabilized, why not stabilize it at the pre-war rate of 1s 4d (£1-15 rupees) instead of at the present, and also the old and long standing rate of 2s (£1-10 rupees), by making the £1 currency note legal tender in India at Rs 10? The answer is that to do so would involve a great rise in prices in India, prices already being so high as to cause acute distress among vast numbers of people, and a collapse of the present financial basis of Indian government. India is far less fitted to cope with violent fluctuations in the average price level than Western nations, and the attempt to stabilize the rupee by means which would greatly enhance prices would be disastrous

From the Indian point of view the chief considerations are that with a fluctuating rupee international trade is a gamble, and the acceptance of appointments by Civil servants and others in India is also a gamble. India profited enormously by the stable rupee of the

pre-war period, and badly needs a re-stabilization. This can only be obtained in one of the following ways —

(1) By my method of making British currency notes legal tender in India at the present rate of exchange

(2) By making Indian paper money inconvertible and issuing it freely.

(3) By lowering the silver contents of the rupee

(4) By prohibiting or heavily taxing Indian exports

(5) By freely importing gold into India

Of these alternatives (2) and (3) would be disastrous to India, (4) an injury to India and a disaster to Great Britain, (5) would drain away a practically unlimited quantity of gold into India and depreciate paper money in all the rest of the world. But (1) pools the financial strength of the Empire, and benefits all portions. It means cheaper food and more employment.

MR M. SUBEDAR ON BEHALF OF INDIAN  
MERCHANTS' CHAMBER

The Indian mercantile view is that the currency and exchange policy pursued by the Government in recent years has not been sufficiently directed with a single eye to the promotion of India's interest. It is claimed that the measures that may be adopted in the future should be such as to secure the active co-operation of Indian businessmen. The Chamber deprecates, unless it is proved to be inevitable, "the continuance of a system of currency management in which the controlling power lies not with those who live in India and who are directly concerned in the matter, but with those who try to manage things from the standpoint of the London money market, the English Treasury, and English financial and commercial interests."

The suggestion of the Chamber is for the issue of a new coin, of the value of, say, Rs 2 or 3, as a token coin with so small a percentage of silver that even if the metal rises to 70d. or beyond there would be no danger of the new issues being melted down.

The Chamber desires the removal of prohibition of private imports of precious metals into India imposed during the war. It lays stress on the necessity of a state Bank for India.

MR S. K. SARKAR, I. A., B. L.,

I have said that the Exchange Committee cannot recommend any permanent solution because I am deeply persuaded that unless the value of the precious metals is fixed once for all by international settlement and the mints are open to the free coinage of gold and silver in India, there must be an inevitable increase in the volume of currency responsive to the demands of the country but to the demands of the export trade, leading to the inflation of prices and all the consequences that flow from it. I do not think outside a handful of economic empiricists, whose number can be counted on one's fingers' ends, there is any support for the present "exchange standard" which I maintain is neither fish, nor flesh nor good red-herring, and there is no strong body of men who recommend it for civilised communities.

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### British Finance.

In the course of his speech in the House of Commons, Mr. Chamberlain made the following general remarks regarding the finance —

"For many years past we have recognised in the conduct of Debates upon foreign affairs that what was said in this House was not confined to the ears of this House, but spread over the whole world, and that our discussions had reactions far beyond our own boundaries, and the House has accordingly, with happily few and rare exceptions, carried on its foreign relations discussions in that light of the consideration and with all the seriousness and the discretion that that consideration demands. To-day the same thing is true of Debate on our financial situation. They no longer are listened to or read by ourselves alone. They are watched throughout the world, and what we say here will and must have an effect not only upon confidence at home but upon our international credit in the world at large. The position that is disclosed in these financial papers is a grave one. Let us treat it gravely. There is every reason for caution, for economy and for wise husbandry of our resources. There is no reason for panic. Do not let us start it. There are some people who confuse hysteria with strength. They are not the same thing and I hope the House of Commons will not make that mistake."

## MOTOR TOPICS.

### A Motor Show

**A** Correspondent writes in the *London Times* The forthcoming show at Olympia will for many reasons be of more than usual interest. The recent Automobile Salon in Paris, of course, served to introduce a number of new cars to the public, but there has been no opportunity since 1913 of studying a representative and up-to-date collection of British vehicles for a comparison of the progress that has been made by various manufacturers and the success which is likely to attend the efforts of new entrants into the industry.

### Mass Production.

One development that will be noticeable at Olympia is the decrease in the average number of models produced by each manufacturer. The tendency is in the direction of specialization upon one model. In most cases the output capacity of factories has been much enlarged, and consequently for both reasons a long step has been taken in the direction of comparatively large quantity production. For the rest, the main change is in the direction of simplification of design, the use of new but well proved materials, and the consequent reduction of weight.

In fact, many manufacturers, realizing that they cannot possibly offer good cars at a low price, have preferred to devote their attention to a product which while fairly expensive is regards first cost, shall give the best possible economy as regards cost of operation, effecting savings in such items as fuel, tires, and general maintenance. Most post-war models also recognize to some extent the probability that a larger percentage of motorists will now dispense with the services of paid drivers, and the consequent desirability of simplifying the necessary work that must be done by the car-owner himself to keep the vehicle in good condition.

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### Future of Motor Traffic.

Sir Eric Geddes, Minister of Transport, speaking at a dinner of the Society of Motor Manufacturers and Traders, in London on November 8th said: A new era of transportation was beginning, and we must have better roads, reserved exclusively for motor traffic, with a private organisation acting as a clearing

house. The roads must be classified and standardised and through routes laid down and maintained up to the standard by means of a levy on the users of the roads and landlords who benefited by the fast traffic over their estates. There was a great future for the road transport of goods and passengers within a radius of fifty miles of the great towns, providing better service than the railways. We must also find a cheaper road train than the present lorry and cheaper fuel.

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### Motor Ships for India.

Discussing the prospects of the motor boat industry in India, the *Motor Ship and Motor Boat* says that there is likely to be a great development in the construction of moderate-sized motor vessels for use in India, particularly large shallow-draught craft for passenger and freight carrying on the rivers. Several boat-building yards suitable for construction of motor craft up to 100ft in length have been established during the past two or three years and a very large site has just been acquired by a company close to Calcutta, where shipbuilding will be carried out on a larger scale than hitherto.

The chief demand will be for hot bulb engines, as well as paraffin motors for the smaller craft. British manufacturers would do well to make themselves more fully acquainted with the possibilities of this market.

During the war, owing to the difficulty of obtaining marine for Great Britain, very large numbers of American engines were imported, but as manufacturers in the United States do not cater for the market for hot-bulb and pure paraffin engines to quite the same extent as British firms, the latter should be able to make good headway, provided their prices are not too far above those of their foreign competitors.

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### The Automobile Association.

The Hon Mr Purshotamdas Thakurdas, C I E, M B. E., J P., and Mr H P Gibbs, have joined the Provisional Committee of the Western India Automobile Association. The other members of the Committee are Messrs F Robinson-Ward, R. H. Higham and

E. J. M. Hudson, with Mr. H. A. H. Payne as Legal Adviser. Mr. G. M. Rose, of 12-14, Church Gate Street, Bombay, is the Honorary Secretary from whom forms of application for membership may be obtained. Forms may also be obtained from any motor dealer in Bombay and at the principal clubs throughout the Presidency.

### Roads and their Past.

A correspondent writes in the *Times of India* —

It is written in old Persian and Indian histories that some of the emperors took the most diligent care in the matter of constructing roads. Darius Hystaspes, for example, is said to have been the first man to bring the postal system into existence by causing messengers to carry letters at certain stages which were marked out on roads which were so well built that each "khepia" messenger ran a long distance in a short time. To Akbar has also been given the honour of constructing some of the best built roads of India.

The Agra-Bombay road, along which many a motor race has been run, owes its origin to the genius of some one or more Indian princes. However, even though the ancient orientals knew the art, yet the modern methods of road construction are of occidental origin, and it was the Romans who spread the light of civilization all the continent of Europe by constructing magnificent roads. Tracing ancient history, we find that Rome has something definite to show in connection with road-construction. Even to-day there are roads in the north of Britain that still point their origin to Roman hands, just as the great novelist Scott says, in the beginning of his romantic novel *Ivanhoe*, that there are forests and trees in Yorkshire to-day too under whose shade the marching legions of Rome sat or rested awhile. The Alpin Way, built by the Romans long before the birth of Christ, seems to be the first landmark in the history of modern roads.

### New Companies.

During the week a couple of big motor companies have been incorporated in Calcutta. The more ambitious concern is the Calcutta Motor Service, Ltd, with a capital of Rs 50 lakhs, the Managing Agents being Messrs

M. McGinley and Co. The object of the company is to provide Calcutta, Howrah and the suburbs with a rapid, efficient and up-to-date motor-bus passenger service as an auxiliary mode of quick transport. Concurrently with the passenger service the company will maintain a fleet of highly upholstered cars to meet the convenience of tourists, visitors and residents, while a well-equipped taxi-cab service is also contemplated. A special feature of the motor-bus passenger service will be a number of omnibuses *de luxe* to ply between the European residential quarters of Calcutta and shopping centres. Arrangements are being made with a leading American firm specialising in the manufacture of the various types of cars and lorries required to ship immediately 200 chassis, cars and taxis to Calcutta, and to send out an expert to organise the service on a sound basis. It is anticipated that the company's cars will be plying for service all over Calcutta and Howrah by the beginning of January next.

The Bengal Motor and Electric Co., Ltd, incorporated with a capital of Rs 10 lakhs, is a purely Indian concern, the managing agency being in the hands of Messrs Ganeshdass Ramgopal. The capital has already been oversubscribed. The company intends to secure agencies for automobiles and accessories, machineries and electrical goods from British and American manufacturers, who still remain unrepresented in India.

### Motor-Cycling.

"The British trade does not seem to understand what real service means." This was the opinion expressed by a United States motor-cycle trade commissioner early this year, and a good many British riders are in agreement with him. There is no denying that in the past there has been a great lack of sympathy generally between the maker, the agent, and the rider, but there are many hopeful signs that this is coming to an end and that the British motor-cycle trade has learnt its lesson.

During the past six months riders have complained of endless delay and irritating correspondence over replacements by makers. Little allowance has been made for the great disorganisation in the change-over from war to peace, but even this dislocation has not justified many of the cases of neglect alleged against British firms and in many cases of agents.

## NEWS AND NOTES.

**A** message from London of November 26th, says that the sales of cotton mills in Lancashire continue. A syndicate has arranged to purchase six concerns at Ashton-under-Lyne, totalling over half a million spindles for a million and a half sterling.

During one week-end new capital issues in Britain, totalled over 14 millions sterling. These are the kind of companies which are being floated —

Department stores	Films
Soap and candles	Oil
Agriculture	Bricks.
Produce broking	Sea fishing
Agricultural machinery.	Insurance
Mining	Shipbuilding
	Marine salvage

\*

Acting upon the recommendation of the recent International Trade Conference, a national committee has been organised to supply long-term credits for European purchases in the United States. The personnel includes Mr Taft and Mr Schwab

In the wake of a merchants' association for the district of Tanjore which was formed in April last, has followed a merchants' bank for financing the operations of their trade.

The main objects of the Merchants' Association were the promotion of unanimity amongst them, the collection and the compilation and distribution of information upon subjects of commercial and industrial concerns and the rendering of help to them for the starting of banks

A meeting of the rice, grain and sugar merchants of Madras was held at the office of the Southern India Chamber of Commerce with Mr Abdus Subhan Sahob in the chair. Speeches were delivered on the need for a separate association. On the motion of Mr Abdul Kareem Noor Mahomed, an association to be called "The Rice Grain and Sugar Merchants' Association" was formed

The Board of Trade has appointed a Committee to inquire into and to report upon the following questions —

1 Whether any extension or amendment of the Merchandise Marks Act is required in respect of the provisions relating to indications of origin

2 The utility and effect of National Trade Marks or other similar (collective) marks, and how far they should be authorized or encouraged in this country

3 How far further international action may be necessary for the purpose of preventing the false marking of goods

The following have been appointed as members of the Committee — Mr Harry Green, M P (Chairman), Mr N E Behrens, Mr M B Dickie, Colonel Sir Nugent T Everard (Bt), Mr H Fountain, C B, C M G, Mr W Temple Franks, C B, Mr George Hayhurst, Mr J Hood, M P, Mr C Hyde, Mr J Evans Jackson, Mr D M Keily, K C, Mr Lennox B Lee, Mr G A Moore, Mr Thomas Pratt, and Mr R T Wilson. Mr M F Levy has been appointed Secretary

H E Lord Willingdon performed the second formal opening of the Madras Women's Work Exhibition on November 27th, in the presence of Lady Willingdon and a large gathering. Mrs Todhunter in a short speech requested His Excellency to distribute the awards. The Governor then gave away the medals and certificates for the best exhibits. The Governor's silver medal was awarded to the Subadar in charge, and bronze medals to others in charge of the Queen Mary's Disabled Soldiers' sections. Silver medals were presented to exhibits from the French Settlements, Ceylon, Travancore, Hyderabad, Cochin and Pondicherry

In the House of commons, Sir A Geddes announced that as from December, 1st, household coal would be reduced by 10 shillings per ton with a view to making special effort to reduce the cost of living. Moreover the price of bunker coal for ships engaged in coastal trade would be reduced to the industrial level, while Government was examining the question of vessels engaged in foreign trade because



bunker prices were so high that there was a danger of average level of rates rising unless corrective were applied

\* \* \*

The mill-hands of Elgin Mills, Cawnpore, followed the example of the Wollen Mills weavers by striking. No notice were received by Mun and Victoria Mills and the employees in these mills nevertheless came out in sympathy. In the case of the Victoria Mills, where there had been trouble before, increases of wages were granted last month to bring them up to the level of the other mills. In the case of Mun Mills for the last 12 months in view of the high price of food stuffs, a grain shop has been run for the benefit of the operatives, where grain has been sold to men at less than cost price. Schemes are also on hand for the building of workmen's dwellings such as the Wollen Mills already have in the Lalimli settlement and only await the formation of the Improvement Trust. Saving and provident funds are also in contemplation for the workmen in the concerns, which have not already got them.

A meeting of the principal employers decided that the hasty and unwarranted action of the workmen compelled the employers to take concerted action and to stipulate that the men must return to work in the first instance before any consideration could be paid to their demands or grievances.

\* \* \*

A scheme for all-India services, as a basis of scientific organisation, has been put forward by the Indian Industrial Commission in paragraphs 120-126 of their report and supported by the Government of India subject to certain criticisms of detail in their despatch dated 4th June, 1919. The Government of India have decided to deal in the first place with the case of officers employed under Government as chemists and have, with the concurrence of the Secretary of State, appointed a committee with the following terms of reference—(1) To consider whether an All India Chemical Service is the best and most suitable method of overcoming the difficulties and deficiencies pointed out by the Indian Industrial Commission, (2) in the event of the Committee approving of an All-India Service to devise terms of recruitment, employment, and organisation to indicate the extent to which chemist

already in the Government employ should be included in that service and to suggest what should be the relations of the proposed organisation with the public and with the departments of the Government of India and of local Governments, (3) in particular to frame proposals for the location, scope, and organisation of institutions for chemical research. Professor J. E. Thorpe, C. B. E., D. Sc., Ph. D., F. I. C., F. R. S., Professor of Organic Chemistry in the Imperial College of Science and Technology, London, has been appointed President, and Dr. J. L. Simonsen, F. I. C., F. A. S. B., Forest Chemist, Dehra Dun, has been appointed member and Secretary.

\* \* \*

It is stated that during the month of October 649 motor cars were imported into British India of which 609 were from the United States of America. Between the months of April and October the total number of cars imported was 3,202 estimated at a total cost of over 90 lakhs of rupees. Last year there was a prohibition regulation and the imports totalled only 34, valued at about 1½ lakhs. Of the 3,202 cars imported between April and October this year, 3,039 cars came from the United States, 158 from the United Kingdom, four from Italy and one from France. Taking the provinces separately, Bombay imported 1,572, Calcutta 938, Madras 329, Burma 229, and Kwachi 134.

\* \* \*

The Paris *L'igaro* publishes the following true story of the working of the French luxury—

A man went to one of the big furniture dealers to buy a writing table. Choosing one of the least pretentious pieces, he asked the price. It was 800 francs, which seemed rather high. The shopman, however, added "We will add this little arm-chair. It isn't dear. Only 50 francs."

"No, I don't want it. I have quite enough chairs."

"Excuse me," said the seller. "If you buy the desk alone I shall have to ask you to pay the luxury tax, which comes to 80 francs. But if you take the chair as well I shall be able to put down your purchases as a suit-office furniture. For this the tax limit is 1,500 francs, and I do not have to charge you on a purchase of 850 francs. Thus if you take the chair you save 30 francs and have an extra piece into the bargain."



As a measure of economy the chair was bought

France is not the only country in which legalised absurdities of this kind are to be found. At home, it is said, the problem of "How to Dodge Dora" has become almost a popular pastime.

\* \* \*

A Delhi communique announces that compensation can be claimed from the late enemy Governments in accordance with the Reparation clauses of the Treaty of Peace in respect of damage falling under the following categories --

(1) Damage to injured persons and to surviving dependents by personal injury to or death of civilians caused by acts of war, including bombardments or other attacks on land, on sea, or from the air, and all the direct consequences thereof, and of all operations of war by the two groups of belligerents wherever arising

(2) Damage caused by Germany or her allies to civilian victims of acts of cruelty, violence or maltreatment (including injuries to life or health as a consequence of imprisonment, deportation, internment or evacuation), of exposure at sea or of being forced to labour, wherever arising, and to the surviving dependents of such victims

(3) Damage caused by Germany or her allies in their own territory or in occupied or invaded territory to civilian victims of all acts injurious to health, to capacity to work, or to honour, as well as to the surviving dependents of such victims

(4) Damage caused to civilians by being forced by Germany or her allies to labour without just remuneration

(5) Damage in respect of all property wherever situated belonging to any of the Allied or Associated States or their nationals, with the exception of naval and military works or materials, which has been carried off, seized, injured or destroyed by the acts of Germany or her allies on land, on sea or from the air, or damage directly in consequence of hostilities or of any operations of war

(6) Damage in the form of levies, fines and other similar exactions imposed by Germany or her allies upon the civilian population

Persons or firms desiring to register their claims should apply to the Local Government or Administration within whose jurisdiction they reside or carry on business. Any other information required on the subject may be obtained from the Local Government or Administration concerned. It is desirable that the claims should be substantiated as fully as possible

\* \* \*

Speaking at a luncheon at the Savoy Hotel given in his honour by the Free Trade Union, Sir Donald Maclean said Tariff Reformers in the House of Commons meant business, and Liberals who imagined that the small measure of Imperial Preference so far adopted was of no consequence had been giving away the Free Trade citadel.

It was all rubbish to talk about small instalments of Imperial Preference not amounting to much. The advance guards were in the ramparts of Free Trade and the sooner they realised that the better. "This is pre-eminently a fight for the country," added Sir Donald, "Go out and let the people know that the reign of corruption is at hand because, unless I am much mistaken, before this Parliament is dissolved, another and greater attempt will be made."

Referring to financial situation and the Chancellor's speech in the Commons, Sir Donald said we had Jeremiah sounding his dreary prophetic note on August 7. Now we had Mark Tapley putting in his appearance on the stage. There was no credit in being jolly on such an occasion as this. That the financial position should be treated with such flippancy such lack of a grasp of the realities of the situation made him tremble not only for the future of Free Trade, but as to the financial stability of the nation in the troublous times ahead.

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Dec 16th, 1918

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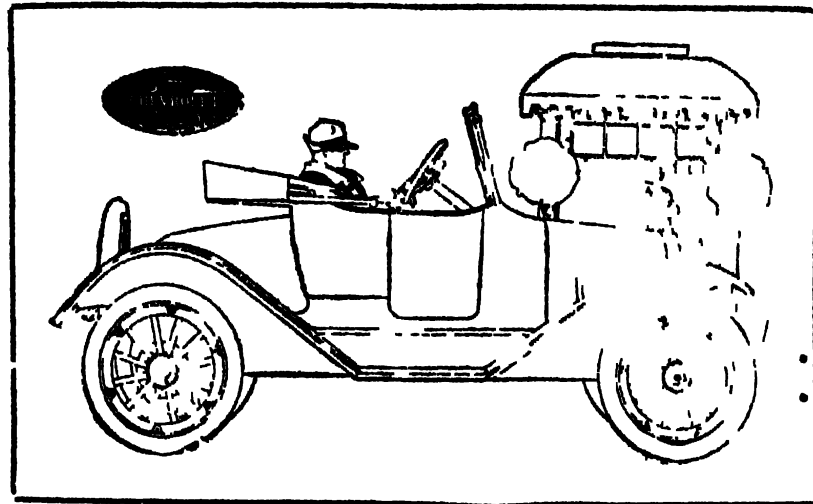
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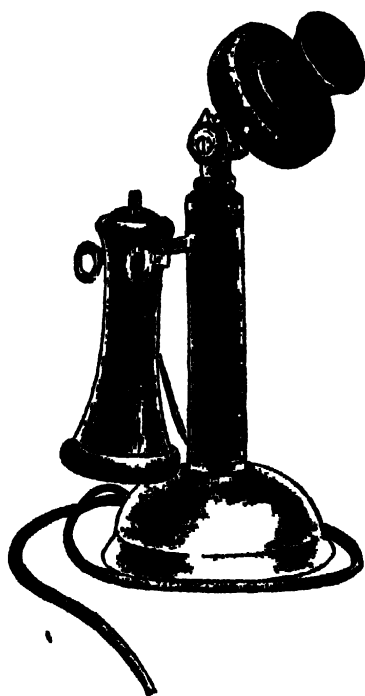
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December, 1919.

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# "COMMERCE & INDUSTRIES"

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## COMMENTS AND EDITORIALS.

### **The Royal Proclamation**

**H**IS Majesty's Gracious Proclamation, which we publish elsewhere, announcing the Royal Assent to the Reform Act, has been received with feelings of profound satisfaction and gratitude by all classes of people in this country. We feel that no nobler words can herald the new era on which India is entering, or brighter sentiments restore the waning confidence of the Indian people in the goal of British policy in this country. The Message breathes, in every line of it, a generous and sympathetic spirit and holds out encouraging and cheering promises for the future. We deeply appreciate His Majesty's direction to the Viceroy to exercise Royal Clemency to political offenders. We earnestly trust that the eloquent appeal for co-operation and unity, which is the underlying note in the Royal Message, will evoke a magnificent response from the people.

### **The Situation in Europe**

We referred last month to the fearful portents in the European sky. Events in that Continent march with such quickening rapidity that it is difficult for us, who are far away, to apportion their relative importance with a proper sense of perspective. Our forecasts of to-day are likely to be disproved by the

happenings of to-morrow. Is the problems arising for solution are such as to baffle the keenest ingenuities of even wide awake statesmen. We write, therefore, with great reserve.

The very serious question of deciding the future of Russia and Turkey continues to engage the time and attention of the leading statesmen of Europe. The enormous indebtedness of Russia to France renders it impossible for the latter country to be indifferent to its solution. France is passing through a serious economic crisis, the rate of exchange standing at the unprecedented figure of 45 30 francs per £. Further, European nations are interested in checking the advance of the Bolshevik peril. The financial position in England necessitates the withdrawal of her forces from the occupied territories but the attitude of Germany is changing for the worse. The League of Nations, about which so much was spoken and written, appears, for all practical purposes, to be impotent, since America, which practically initiated it, has, more or less, deserted it. All these grave and momentous questions appear to have been discussed in the recent conference between Mr. Lloyd George and M. Clemenceau who are said to have arrived at a satisfactory understanding.

### India's New Charter

We welcomed, in our previous number, the publication of the Report of the Joint Parliamentary Committee on Indian Reforms and expressed the hope that Parliament will pass the Reform Bill without mutilation or delay. We are happy that the Reform Act has been placed on the Statute Book and that India is entering upon a new era. The old order has verily changed, yielding place to the new. It is our duty to undertake the new responsibilities in a spirit of confidence, enthusiasm and trust and we have no doubt that Indian leaders will rise equal to the occasion.

### International Labour

We notice, from the proceedings of the Labour Conference at Washington, that much interest was taken in the settlement of the problem of the eight hour day or the 48 hour week. The workers demanded that the above principle must be accepted but the employers contended that the principles must be elastic in the best interests of their industries. A Communique on the subject says that "after a long argument the employer agreed to accept the eight hour day principle on condition that, in the case of industries having either a half holiday or other hours of rest, those hours which were worked could be added on to the working day. The workers in their turn objected to this on the ground that it would give too much latitude in that, hours might be fixed at eight for one day, ten for the next, twelve for the next, and so on." Out of this apparent dead lock, the following agreement viz "that such regular hours of rest might be redistributed on other days but on the condition that in such cases no working day should exceed nine hours in length" was reached. The workers' request that the eight-hour day and the 48 hour week, principle be applied to transportation by sea and inland waterways was approved as also the

employers' request that the devastated regions be excluded from its application.

### Indian Labour

In our own country, labour is slowly organising itself. We are not opposed to the Labour Movement *qua* Labour Movement as we are conscious of the advantages of organisation in every field of human activity. We fully concede that such a movement has great potentialities in it. It might be a sound corrective of recalcitrant employers. But it must be carefully organised and properly led, especially, at its initial stage, so that the movement may keep within its bounds instead of growing into a menace to Society. We have no reason to believe that this aspect of the movement has escaped sufficient attention of those who are promoting it.

### The Imperial Bank

Mr. Norcot Warren's proposal for the formation of an Imperial Bank of India by the amalgamation of the Presidency Banks has aroused considerable interest in this country. There are many who view with misgiving the proposed move. Mr. S. R. Bomanji of Bombay has invited the shareholders of the three Presidency Banks to a Conference to be held next month for the consideration of this important question. While reserving our own comments, we give below some of the reasons advanced in favour of this scheme. It is explained that public opinion in India is becoming more and more articulate and that an Imperial Bank with access to London and with other special privileges from Government would be in a better position to provide for healthy banking developments and would bring the resources of Government into a closer and a more beneficial relationship with this country's Commercial interests. It is further pleaded that a London Office would be in close touch

with the London money market, would arrange sterling loans for local bodies in India and make investments in British securities, would re-discount Bills of Exchange relative to Indian trade drawn in Rupees or in Sterling and would seek to be entrusted with the Secretary of State's remittance business and the handling of his sterling balances.

#### **Agricultural Conference at Pusa**

The Agricultural Conference at Pusa, which was attended by a large number of experts, discussed numerous important subjects. The resolution that local panchayats must be given greater powers to effect improvements in irrigation and road-making with rights of levying taxes, if given effect to, will substantially facilitate the development of Agriculture. By far the most important question discussed by the Conference related to the prevention of famine and the steps to be taken *in advance* to meet famine conditions. The following remedial measures which the Conference recommended unanimously will be read with interest and profit: (1) Development of well boring, (2) Relieving land owners of the cost of unsuccessful trial borings, (3) Systematic survey of supplies of underground water, (4) The use, in certain areas, of strainer tube wells, (5) Survey and mapping of rivers which can be utilised by pumping in seasons of drought, preliminary choice of pumping stations and command of the necessary pumps, (6) Anti erosion protective works and afforestation, (7) Investigation into the application to India of dry farming methods, and botanical investigation of drought resisting crops and strains of crops, (8) Improvement of grass areas (as by introduction of better grasses and control of grazing) both in precarious tracts and in districts which send fodder to the precarious tracts, (9) Systematic investigation of emergency toddlers, (10) Further investigation (in continuation of enquiries already

made) of methods of grain storage to prevent loss by rats, mice, insects, and decay, and (11) Reconsideration of the problem of large-scale storage of grain.

#### **Sir Claude Hill's Speech**

Sir Claude Hill's valedictory address contains several points of interest. Referring to the problem of cotton and the development of its cultivation in India, Sir Claude announced that action will be taken in conformity with the recommendations of the report of Mr McKenna's Committee. Regarding the question of Agricultural development, he hoped that not only that State education for agriculturists has taken a start but that most of the major Provinces in India will be furnished with a well equipped college for higher education and for research in agriculture. The policy for the future, said Sir Claude, will be to Indianise the Imperial Agricultural service as rapidly as this can be done, although he recognised that for some years to come, the best men procurable, wherever recruited, will be required. Sir Claude Hill concluded his speech with a fine peroration appealing to all people that racial antagonism must soon disappear.

#### **The Madras Stock Exchange**

We have received a copy of the Prospectus of the Madras Stock Exchange which has recently been formed in this City. The advantages of a Stock Exchange in developing trade and industry are great. It will attract dormant wealth to the field of business, keep alive the interest and enthusiasm of merchants and generally, rouse the lumbering capitalists to activity. This organisation has not come a day too soon in Madras and we congratulate the gentlemen who were responsible for initiating it.

The Prospectus clearly sets forth the general advantages of Stock Exchange and

indicates how it can directly contribute to Commercial and Industrial development in Madras. The Membership will be limited and only gentlemen of position and standing will be admitted at the discretion of the Board of Directors. The admission fee is Rs 1,000. The following gentlemen constitute the Board —

- (1) The Hon'ble Rao Sahib M. C. T. Muthiah Chetty, Chairman
- (2) Sheth Narayandas, Ghirdhardas Vice Chairman
- (3) Sheth Goculdas Govardhindas
- (4) Sheth Hissar Singh Jassi Singh
- (5) L. M. Guyver Esq
- (6) Sheth Digaji
- (7) Moulana Abdus Subbin Sahib Esq
- (8) Sheth Ramji Cattampi
- (9) Chundulal M. Kothari Esq. F.A., F.I.C.,  
Hon. Secretary, 52 Bunder Street,  
Madras

The Directors will, as soon as the necessary number of applications has been received, frame rules and regulations for the conduct of business on the Exchange. We hope that the businessmen of Madras will co-operate in establishing it on a sound and enduring basis.

#### **The Viceroy in Madras**

H. F. Lord Chelmsford visited Madras on the 24th November and stayed in the City for three days, during which time, he visited various institutions and carried out a heavy programme of engagements arranged for His Excellency by Lord Willington. As many as fourteen public bodies presented Addresses of Welcome to Lord Chelmsford and in a joint reply, His Excellency has spoken of matters in which we are directly interested. After expressing appreciation of the work of Sir Francis Spring for his labours in connection with the Madras Harbour, the Viceroy said that the question of improving the Vizagapatnam harbour will make material progress in the

near future. With regard to Railways, a Committee, which will sit during the cold weather of 1920-21, will inquire into the contentious subject of State and Company management of Railways. The idea of removing the disadvantages arising from differences of gauge must remain a dream for the present in view of the heavy cost which it involves. Referring to the question of industrial development H. E. the Viceroy spoke as follows:

"The Southern India Chamber of Commerce have referred to the economic dislocation brought about by the war, and to the problem of prices. They look forward to the development of Indian industries as the need of the moment, and I trust with them that in the launching out of a vigorous industrial policy will be found the solution of many of our difficulties. Madras holds an honourable position in respect of industries and has the right to ask for a vigorous policy, but I can assure you that my Government is pressing forward in the matter. The recommendations made by the Indian Industrial Commission have been dealt with as expeditiously as possible. Sir Thomas Holland who will be in control of the new development is shortly returning, and I hope that the foundations of a new industrial era will in the near future be laid deeply and surely."

On the question of exchange and currency and financial settlements regarding the Provincial and Central Governments, His Excellency said —

"In my speech at the opening of the recent session of the Imperial Legislative Council I referred to the present difficulties regarding exchange and currency, and I do not think I need say more than to repeat that my Government are fully cognisant of the handicap to trade and commerce caused by these difficulties. We are looking to the Currency Committee for their solution, and I am sure you

will understand that the extremely difficult problem with which they are dealing is one that requires much careful deliberation, but I understand that they are now reaching the final stages of their enquiry.

"I am aware that for many years your Presidency has cherished a grievance in respect of the alleged disproportionate amount which it contributes from its revenues to the common purse. Lord Willingdon has not failed to press me in this matter and would, I suspect, in his transferred affections be willing that even Bombay should suffer for your advantage. You probably know that the present system of financial settlements with the provinces will automatically come to an end with the introduction of the Reforms scheme and the reclassification of revenues between the Central and the Provincial Governments. That reclassification will result in the provinces being allotted considerably larger revenues than at present. The Government of India, however, will be left with a deficit, which must be made good by contributions from the provinces. The decision as to the amount of contribution to be taken from each province will be an extremely difficult matter and a Committee on Financial Relations is to be appointed to go into the matter very carefully. That Committee will of course give due weight to any representation that any province may put forward regarding the proportionate contribution to be taken from it and your Presidency will have ample opportunity of placing before the Committee the special case of Madras. I may mention that in order to arrive at some basis for the initial contributions to be taken from the provinces on the inauguration of the Reforms schemes, and also to clear the ground as much as possible before the Committee on Financial Relations takes up its task of fixing the ultimate scale

of contributions, an informal conference was held at Simla in October between officers deputed by the various Provincial Governments and the Finance Member, and I hope that their deliberations will prove to have facilitated the Committee's work."

\* \* \*

#### **Excess Profits Tax**

The Chancellor of the Exchequer Mr. Chamberlain announced, some time ago, in the House of Commons that while the financial situation in England gave no cause for panic, steps were being taken to reduce the burden left by the war. He said that a select Committee would examine and report upon the practicability or otherwise of the taxation of war profits. This suggestion has caused a flutter in the London business dovecot. At the monthly meeting of the Council of the Association of British Chambers of Commerce, the proposed taxation of war profits came in for a good deal of criticism. It was stated that to reopen all old transactions for the sake of those who had escaped taxation was unsound and impracticable and would cause much damage to industry. Further, to interfere with the finance of business would damage the finance of the country in such a way that it would be years before that damage could be repaired. After much discussion, the Council passed the following resolution—

"The Council of the Association of British Chambers of Commerce records for the guidance of the Government, its opinion that the recent proposals for taxation of what are in many cases mistakenly called war profits are preventing British trade expansion and are shaking the confidence of those to whom capital and reserved profits are the working tools of their trades. The Council considers that apart from death and other existing duties and taxes any proposed additional reduction of the National debt by direct



taxation should be provided by taxation of current profits and current income. The Council lays it down as an axiom that any attempt by the State to re-open trading transactions of the past in order to take the profits on them can only result in inextricable confusion and injustice, and in grave injury to trade and to the economic fabric of the nation."

We admit that it will be very difficult for the State to fix the exact amount of war profits in each case as a preliminary to taxing it. Apart from the contention that such action will cause in the business world it will, to some extent, check the growth of business by engendering a feeling of nervousness in the minds of the people. There are also certain misunderstandings in this connection. Capital is wealth engaged in service or readily available for the purpose. A business man's capital will be spread through every commercial activity he undertakes and need not be a 'bag of gold'. In fact whatever is capable of being used for the production of more goods represents capital. The narrower conception of capital is ill-gotten gain at the expense of labour. The difficulty of exacting a war profits tax is great by itself and it is clear disservice to attempt to reduce the liquid capital which will have the effect of ruining many commercial undertakings. Further, a general order to tax war profits will result in capital not being able to be converted into currency because there would be very few buyers when most of the people become sellers. The disadvantages of the State receiving payment in kind are too patent to require explanation. We admit these practical difficulties.

But we are not sure of the wisdom of the Council in condemning the proposal in advance. The report of the select Committee has not been published and it would have been fair play to have awaited their recom-

mendations. If the select Committee suggest ways and means of carrying out the proposal without provoking much opposition or crippling industrial progress, we do not see why those who made fortunes out of the war must be allowed to escape without being compelled to bear a share of the national burden. We emphatically condemn the actions of those who took advantage of their country's difficulties to exact unreasonable profits for themselves. We admit that there is considerable divergence of opinion even among well-informed people in England as to the best way of reducing the National deficit. The *Times* calls the scheme of the Chancellor of the Exchequer to tax war profits as chimerical while itself detesting those who made unreasonable fortunes at the expense of the country. It says that "there is only one way to prosperity and that is by increased production, which we shall never get in sufficient measure until capitalists have confidence in the continuance of satisfactory conditions and the workers see that their future prosperity depends not upon their power to hold up the community to ransom, but on their active Co-operation in the creation of wealth." We admit that there is much force in this argument. While it will restore England in the even tenor of her way, will this course substantially mitigate the national burden? Mr. Asquith thinks that the only way of dealing with the situation is to frankly impose additional taxation. He says—"We could not get rid of the real incubus upon our future prosperity without taxation, and taxation must take—because we could not go on increasing the burden upon the necessities of life—one of two forms. There were only two choices—either an increased income tax, which is already very high or some form of duty upon realised or realisable wealth."

**Income-Tax Audits and the Assessors**

We desire to invite the attention of the authorities to some of the inconveniences and hardships which the practical working of the Income tax Act of 1918, subjects both merchants and Auditors. Under the Indian Companies Act qualified persons are authorised to audit and report on the accounts of limited companies. From among these Auditors, a very small number is distilled under the Income tax Act and granted authority so that they might assist the Income tax Collector by their reports, in deciding upon income tax assessments. The procedure generally is for the merchants to get their accounts checked by the Auditors and for the latter to forward their reports to the Income tax Collector, who will keep them as the basis for assessing the amount of Income-tax. We have received complaints from merchants that in actual practice they are put to a great deal of avoidable worry

When once the merchants have submitted their accounts to the rigorous scrutiny of the Auditor and have satisfied him on all points, we believe, their responsibility in the matter is over. But, in some cases, things have happened like this. The Income tax Collector on receipt of the Auditor's report, and after a good deal of subsequent correspondence with him, has directly issued summons to the very merchants to appear before him with their account books and vouchers etc. We need hardly say that the hardship is patent especially to businessmen to whom time is money. The only explanation for this cumbersome procedure which we could gather is that the authorities desire to have a complete list of the constituents of the Assessors and where they fail to get this information, either from the Auditor or from the Assessors they resort to this devious course. Whatever may be their intention in gathering such infor-

mation, we feel that to compel a merchant to disclose his trade secrets is very highly objectionable and unreasonable. The Income-tax Act of 1918 is only a year old and it was passed with the object of encouraging merchants to submit their accounts for audit, to promote generally business efficiency, and to avoid income tax litigation. Merchants are slowly taking to it and when they are able to appreciate its advantages the objects of the Act will be fulfilled. But instances such as we have pointed above can have the effect of only dissuading them from submitting their accounts for scrutiny and in some cases, the merchants may not maintain accounts at all. We do not believe that the authorities desire to reduce things to such a pass but since we have disclosed some facts as we have known them, we hope they will take the necessary action.

If the Income tax Collector actually feels that the Auditor's reports are deficient in some respects, the only right course would be to lay down specific instructions for the guidance of Auditors as to the various points on which they must report. The Indian Companies Act clearly gives these things. We hope the authorities will kindly consider our suggestions and take the steps needed to give effect to them and to prescribe the form in which it is possible in which the Auditor's report should be made so as to obviate the necessity of entering into further correspondence with the Auditors or summoning the accounts and vouchers of the Assessors already audited for production before the Income tax authorities. The proposals, when duly considered and given effect to by the authorities in the right spirit, will not only considerably facilitate the work of the Income-tax Officers and the Auditors but will also encourage the Assessors in maintaining proper books of account and in getting them duly audited periodically. The general impression of the

Mercantile Community seems to be that they will be obliged to produce their books before the Authorities in spite of the Auditors Report. We trust that the matter will receive the sympathetic attention of the authorities.

### **The Co-operative Movement**

The great value of the Co-operative movement lies in the fact that it not only teaches men to help themselves but sets no dividing line between national and personal interests. It is the noblest movement to promote the common good of man and to elevate him to a higher and nobler plane in life. It is a voluntary organisation of men consciously formed for securing a common end. Now, a Co-operative society is a body of consumers who undertake to provide the goods they require for their own use. They themselves find the necessary capital and direct the whole business of management. The profits or losses of the enterprise affect the whole Co-operative Community. In this way co-operation plays a large part in developing the industries of a country. It also teaches the intelligent organisation of industrial forces. As the chief aim of the industrial development is the economic well-being of man, this can best be achieved by introducing the federal principle in uniting isolated co-operative societies and thus making a great national organisation. In India this movement needs to be spread far and wide its scope and object must be explained by a body of devoted workers so that, in the course of a few years, the spirit of Co-operation may permeate every town and village, exercising its beneficent influence and leading men to practical work.

We are tempted to these reflections on a perusal of Mr G. K. Devadhar's address on "The Message of Western Co-operation," delivered under the auspices of the Bombay

Central Co-operative Institute, with H. E. Sir George Lloyd in the chair. Mr Devadhar, M.A., has done immense practical service in developing the Co-operative movement in Western India and has devoted several years in various fields of Co-operative activity. His recent visit to Europe gave him an opportunity to observe the important features of the movement in the West. He has taken considerable pains to study the problem in England, Scotland, Ireland and Denmark. Anything that comes from him on this subject deserves the earnest attention of those who are anxious to see India occupy her rightful place among the nations of the world.

The stream of Co-operative effort in the West, say Mr Devadhar, is seen to run into channels quite different from those in which it runs in this country. Distributive and productive Co-operation occupies the field in England and has given that country a leading position in the World. In Ireland and Denmark, Co-operation has improved the agricultural outlook and has helped the development of agricultural industry. The Co-operative movement in the United Kingdom has developed into colossal proportions there being roughly 4 million members with a total capital of over one hundred crores of rupees their turnover amounting to over 300 crores of rupees in 1917. Mr Devadhar says that the progress in India is not negligible. There are 26,400 societies with a total membership of 10½ lakhs and the amount of the working capital stands at 14½ crores. The leading feature of the Indian movement is the large number of financing institutions, due to the great need of the agricultural population for cheap and facile credit. In India, the intelligent public have not taken a large part in this movement but what has hitherto been achieved in this field, has been due to Government's help and administration.

We have not yet employed the methods of propaganda which have been successful in the West in order to popularize the movement. Mr. Devadhar is of opinion that the Indian Government and leaders of public opinion should organise parties or Commissions of well equipped agriculturists to pay visits to other countries to acquire additional knowledge. Mr. Devadhar concludes his informing address with the following stirring appeal:

"Let me, lastly, appeal to my countrymen and countrywomen to recognise the practical, economic and social value of co-operation as it is seen in the West. For common good all have to be brought to a higher level and that task can best be achieved by adopting the method of co-operative education as one of the efficient means. The creed of co-operation wants its votaries for this emancipation. It is a work of resurrection also. It is a noble task, and like all noble undertakings, it pleases those that serve and those that are served."

#### **Indian Exhibition, Bombay**

At a meeting of some of the leading citizens of Bombay held on the 17th April 1919, the question of holding an Indian Exhibition in Bombay was considered and the following resolution was passed:

"That a Sub-Committee be appointed to prepare a general report on the question of holding an Exhibition in Bombay and submit the same to the General Committee at an early date." The Secretaries of the General Committee are Messrs. R. F. Gregor Pearce and J. K. Mehta. The Committee met on three occasions and appointed finance and site Sub-Committees to report on the matter. After considering the reports of these Committees, it was decided to recommend the holding of an Exhibition in Bombay in 1922 on the open space between the race-course and the Hornby Vellard. The proposed Exhibition should not be merely a tin show

nor a show restricted to the Exhibition of machinery only but must provide side-shows. As regards finance, it was not possible to determine the amount that will be required but Rs. 75,000 must be raised to invite two experts from the United Kingdom or the United States of America to report upon the Exhibition giving detailed estimates of revenue. A deputation of the Exhibition Committee met Sir Thomas Holland and Sir George Barnes on the 6th June 1919. They thought an International Exhibition out of the question but favoured an Indian Exhibition with side shows attached. They laid stress on the desirability of Provincial and District exhibitions every year. They were against the idea of holding the Indian Exhibition outside Bombay.

#### **Para Rubber Seed Oil**

Mr. B. J. Eaton contributes a very interesting article on the above subject which appears in the December number of the *Tropical Agriculturist*, in the course of which he points out that a detailed report has been received from Messrs. Rose, Downs and Thompson, oil machinery manufacturers of Hull, on a consignment of 26 tons of undecorticated rubber seed despatched by the Director of Agriculture. The whole seed was extracted by Messrs. Wray Sinderson & Co., Ltd., seed-crushers of Hull, in chemical extraction plant. An examination of the figures reveals that even the cost of freight on the seed was not covered by the amounts realised by the sale of the oil and meal, after deducting costs in England. Apart from the criterion of the value of the oil, as indicated by the price realised, a firm of paint manufacturers reported that it might be used to some extent as a substitute for linseed oil, though it would not be equal in quality to linseed oil as a paint oil or for varnishes. The firm valued the oil at £ 20 per ton in normal times compared with £ 30 per ton for linseed oil.

## NEW JOINT STOCK COMPANIES.

By Dewan Bahadur K Krishnaswami Rao Ayl, C I E,

**I**T is very gratifying to find that a large number of Joint Stock Companies have been or are being floated in all parts of India, with unprecedentedly large capital, for commercial and industrial purposes. One most remarkable circumstance about them is that in the prospectus issued by the promoters, expectations of a very high sale of dividends to the would-be share holder and of fees to the Directors are held out.

Considering the many disadvantages under which the Indian Companies have to work, one is tempted to ask whether the promoters of these new Companies have deeply thought over the manifold difficulties in the way of realizing huge profits which alone would warrant the large expectations held out. India may supply the raw material required for manufacturing purposes. The Indian labour which used to be cheap has begun to show an unmistakable tendency to become dear. The labour strikes which are becoming common and the formation of labour unions afford strongest proof of this tendency. The machinery required for manufacturing purposes have to be imported into India from Europe or America at a higher cost than in pre war times. The high class of skilled labour has to be procured from foreign countries at a cost which in view of the prevailing economic conditions, is likely to be exorbitant if not altogether prohibitive. The prevailing high prices and the rise in the wages of labour cannot fail to exercise, to a large extent, their influence in increasing the price

of raw material. The State demand for enhancement of taxes which in view of the coming constitutional changes in the Government of this country and the consequent increased cost of administration, must rise, should not be overlooked. Then there is the most perplexing currency problem which seems to baffle the most acute and trained intelligence of the best financial experts, in their attempt to solve it. There can be no greater commercial evil than an unsteady currency. Above all we have to face the aggressive competition of foreigners who in point of wealth, scientific and technical knowledge and actual experience, are by far superior to us.

In view of all these circumstances, the rate of profits assumed in the prospectus of the new companies, seems to be extravagant. It is wiser to promise a moderate dividend or remuneration, subject to increase with reference to the realised profits. Nothing is more calculated to discourage commercial and industrial enterprises than large promises and small performances. A small promise faithfully performed will secure public confidence, and in the long run, will prove beneficial to the concern. In this transition period too much caution cannot be exercised in estimating the prospective profits of a new business. Failure will retard progress for many decades to come. Generally speaking, investors in shares of Joint Stock Companies will be content with an annual dividend of 6 to 12 per cent provided the prospect of getting it regularly is placed beyond doubt.

## FOREIGN TRADE AND MIDDLEMEN.

BY MILLI METRE

**T**HE three main branches of Commerce are (i) production, (ii) transport and distribution and (iii) sale and finance. Whatever tends to cut short the route between the producer and the consumer is to be desired because in the process the manufacturer or the consumer or both, save for themselves the merchants' profits. This is the case in those instances in which big firms look forward to making all their profits by the sale of their own specialities and charge their customers for all the other incidental expenditure it cost. This is possible only if the said firms have a packing and export department of their own, otherwise the moment the help of another organization is sought, the charges and profits of the latter will have to be paid directly or indirectly by the consumer. Firms like the United States Steel Products Co., have their own packing and export department and having their agencies throughout the world, they can combine these and operate together in a manner that gives them an advantage in the open market. They approach the consumers direct and the public stand to gain by this method.

Let us now look at the position of the middlemen. There are three views about this, the two extremes and the middle one. One view is that the manufacturer having to devote his principal attention to the purchase of his raw material, the management of his labour and the efficiency and operation of his machinery, cannot be expected to devote his energies to the marketing of his wares. Neither should he be able to afford the capital outlay, because he ought to aim at employing his resources in the conduct, upkeep and extension of his factory.

Another view is that the manufacturer ought to control the transport, distribution

and sale of articles in his own country, but should stop at that leaving the export trade in the hands of those who make a speciality of that line of business and are competent to study the needs of the world's markets.

The third view is that the manufacturer should leave the marketing of the wares to the merchant who acts as a middleman between the producer and the consumer. In this connection the merchant claims that he serves a legitimate purpose when he relieves manufacturers of work which their organisation does not fit them to perform, is for example, by financing a great number of small sales. Producers can also afford to take less money for the goods when these are sold in large quantities at a time. Packing, book-keeping, and collection of outstandings are all made less expensive, and of course the cost of advertisement is reduced. There will be fewer bad debts not only is it easier to ascertain the solvency of one firm than that of many, it is also easier to obtain precise information about a large firm than a small one. A wholesale trader buys in large quantities and breaks bulk into small lots to supply retailers who cannot afford to buy except in small parcels. The middleman thus renders to the manufacturer a service in return for a reduction in price which he claims. Wealthy merchants often bespeak of the whole output of a factory and make an advance payment which assists the manufacturer in buying his raw materials advantageously. Thus a merchant becomes a necessity in the export trade and not a luxury as somebody recently put it in the columns of the *Karnataka*.

The whole business of export-trade is so complicated that many persons who are accustomed to get the things they want by

simply mailing an order and making arrangements for payment scarcely appreciate all the intricacies involved in the matter. A number of merchants and middlemen play their part and contribute their share in these export trade transactions. Let us take an instance. A certain man in India wants to purchase a particular machine. He writes to the manufacturer to send him the machine so as to reach him at a particular railway station in India. Beyond agreeing to pay all the incidental charges the Indian does not mention anything else. He simply wants the machine at his own railway station and he does not care how it arrives so long as he is not asked to pay a most exorbitant price for it.

Now the manufacturer, unless he has a special export packing department under him writes to a firm to come and pick it. Then he sends the picked machine in his own lorry to the nearest Railway Station, or writes to a carters' agency to do the thing for him. The Railways take the thing to the nearest port. In the meanwhile the manufacturer would have advised an export merchant about the despatch of goods to the port. The merchant goes to a shipping agency either direct or through a broker and arranges for the shipment of goods. He also goes to the insuring agents to insure the goods against all losses. He then writes to his agents in India and advises them about the despatch of goods and this firm in India will have to clear the goods at the Indian port, pay the customs and arrange to forward the goods to the final destination. Money will be collected in England against shipping documents through bankers or some other arrangement will have to be made.

Division of labour and specialisation have been carried on to such a degree of excellence that in the export trade of a country especially, quite a number of people handle

an article before it reaches its destination. The middleman plays a very useful part in these dealings. It should also be remembered that the middleman not only acts as a sales-agent to the manufacturer but also as a buyer of his raw materials from another country. In both these transactions he claims with considerable reason that being a merchant, he is always ready to buy and sell at a price and is the steadying influence that prevents fluctuations in values, that he has special organisation and equipments, that he gives, as mentioned above, credit facilities to his buyers, and from long study he understands their wants and can anticipate their needs, and also that he makes it a point of his business to study the freight insurance and exchange markets as well as the markets for the commodities themselves. Thus a strong case is made out for the merchant in the foreign trade.

It will be worth our while before closing, to consider the prevailing practice in India amongst big warehouses that stock an infinite variety of goods. Amongst them it is usual to indent for things through some merchant house in London or some other city, specifying the things or particular makers of goods, or selecting them out of a catalogue or sending samples. In many instances the selection of the particular goods is left to the merchant house in London only giving a sort of general description of the thing wanted. Articles like fountain pens, watches, electric bulbs, oil engines, cement, scientific instruments, chemicals, etc., are specified either by the name of the maker or by the well known brands. Tweeds, serges, longcloth etc., are indented for according to patterns. Sheet iron, rails, pipes and such articles are indented for after giving specifications with regard to weight and other standard tests, latest fashions in dress, the most popular perfumes etc., are left to the

discretion of the merchant on the spot. Machinery for any particular work is indented for either leaving the choice to the merchant, or requesting him to send different specifications on the machinery by different makers with his own recommendation. If it is a big purchase, the merchant is asked to follow a particular method of procedure, say, he may be asked to call for tenders and forward them all to India for judging and selection.

A general indent from such big warehouses in India may often comprise goods from a hundred different suppliers in England. The merchant by collecting the goods into one or more shipments included on the bill of lading in each case effects considerable saving for the warehouse in India in freight by thus avoiding a number of separate shipments for the same warehouse on minimum freight. It

frequently occurs that goods ordered from particular houses are not big enough to make a case so the merchant collects them at his packets for despatch in one case together.

Taken all things together it is to the advantage of the warehouse to have an agency of his own in England and if the thing is not possible, the next best thing to do is to have a reputed merchant house in England to act as agents for him.

Whatever may have been the agitation of the interested persons for elimination of the middlemen, the modern tendency seems to be to form close alliances amongst manufacturers, merchants, and shippers. By allying themselves thus, the manufacturers find they are freed from the anxiety, outlay and risk of export trade which can only be carried on successfully by men who have made a speciality of it.

## A COLLEGE OF AGRICULTURE FOR BENGAL

By Mr S Sinha B Sc (III) M A G A

EVERY one of us will admit that it is under the benign rule of the British Government that our people are getting education. The number of educated people is gradually increasing and the number of degree holders during the last five years, has so much increased that quite a large number of them are sitting unemployed, and that, under the circumstances, it is impossible to provide every one of them with suitable appointment. Our education has been of such a type that we cannot do anything but look for services. Unless we make expansion of industries in our country and unless we give vocational education to our young men, more poverty will be reigning in India and starvation's ghost will be seen a foot apart upon the soils of India. Some of our leading men are thinking of this problem. Sir P. C. Roy has

been lecturing on "Bread problem". He thinks that there have been too many lawyers, the bar is overcrowded, there being no room for any new lawyer in this profession. The Law College should be closed say, for twenty years.

What will our young men do in order to earn their livelihood? Should they study medicine? That is also impossible as we know that thousands of students fail to get admission in the Medical Colleges of Calcutta. At the Sibpore Engineering College, there, too, the seats are limited. Then there is one course left to our young men, and that is to take "Farming as a profession". But where is the College where our young men can get both theoretical and practical training in agriculture? People may say "why, there are colleges at Sabour and Pusa". I visited



those colleges. The buildings are large, but the number of regular students studying there is very small. Do the passed students of those institutions take farming as a profession? No. Then what is the general ambition of those students? They look for Government post. But why? Because they were not made "Farmers" after so called practical farm work. A professor of the T. N. Jubilee College, Bhagulpur, formerly a professor of the Berhampore College told me that two of the men trained at Pusa had been employed in Provincial Civil Service. A professor of the Baroda State College, formerly an Assistant Professor in the Calcutta University College of Science visited Pusa. He condemns the expenditure on agricultural institutions as "very lavish" and refers to the popular indignation at public money being squandered on "fattening a few people with little good result to national development" (Vide the *Bengalee*, Aug 29, 1919 and the report of the Calcutta University Commission). A professor of the Holkar College, Indore, writes, as published in the report of the Calcutta University Commission "These departments which are conducted by the Government, agricultural institutes etc., have signally failed so far to give beneficial results." I wonder whether my countrymen know that the Pusa Agricultural Institute which is considered to be the best agricultural institute in India was started by an American Millionaire, Mr. Henry Phipps who gave a donation of \$150,000. To this sum our Government added a bit. If Mr. Henry Phipps would have given the sum to a committee composed of official and non-official, how much better the Pusa Institute would have been to day. Some Englishmen as members of the Calcutta University Commission came crossing the ocean to re-construct the Calcutta University. We are glad to note that they recommended establishing an agricultural college at Dacca which will

be affiliated to the Dacca University. And I think that the future of Dacca Agricultural College will be in the same category as those of the agricultural institutes at Sabour and Pusa.

But whatever it be, we rather wish to see an agricultural college established and affiliated to the Calcutta University. We wish many things but for lack of general sympathy and co-operation our plans get frustrated. I have a plan in my mind and am making it public through the medium of the newspapers. It is for our countrymen to accept or to reject.

Many Indians went to America with scholarships from the Association for the advancement of Scientific and Industrial education to get this training in Agriculture, many of them have returned as agricultural experts, most of them for want of capital could not "go back to the soil", some of them, I hear, have returned to America after being disappointed. I will suggest to our rich men and philanthropists to establish an Agricultural College in Bengal (location will be decided by consulting with several agricultural experts) which college will be after the model of the American State Agricultural Colleges, not in all respects but in many respects. The Staff will be composed of men trained in America, if we be short of such men then we will give appointments to the graduates of other Universities. Why do I give preference to the graduates of the American Agricultural Colleges? I answer. In America all of our common cereals are grown, and we study them. America has made the greatest development in fruit farming. It is Luther Burbank, the "wizard" of plants who created stoneless peaches in America. American Agricultural Colleges are the best in the twin world. Nothing is done in a haphazard way. Some of my readers may think that I am boasting of the American Agricultural Colleges, because my *Alma mater* is Ili-

nois It will be sufficient to give here one or two remarks made by the Europeans about the American Agricultural Colleges and their methods of farming Mr Frank G Carpenter wrote under date, Calcutta, May 20, in issue of the 19th June, 1910 of the "Chicago Sunday Tribune" that the Secretary, Mr Miller spoke highly of their (American) work along agricultural lines saying that the United States lead the nations and that India was taking lessons from the Americans Mr Miller also admitted that modern agricultural movement in India was begun by an American, Mr Henry Phipps of Pittsburg

L. Frederikson, the Danish State Commissioner, returned after devoting a year to the study of agricultural methods in America He said "I should advise anybody to take a trip to the United States He will learn more in America in one week than a whole year travelling in the old country"

"The Farmers of the United States are more progressive than the farmers of Europe and are better farmers The European farmers do not have as good homes, as good furniture nor as much reading matter as the farmers of the United States have"

Will our countrymen believe that a student who graduates from the agricultural colleges of America passes during four years not less than forty different examinations before he is "capped?" A student trained in American agricultural college becomes an "all round man"

Now I come to say something on the proposed agricultural college The length of the degree course will be for four academic years During the first three years agricultural subjects will be taught, and examinations will be held by compartments, and in the senior year i.e., at the 4th year students will be allowed to specialise only in one sub-

ject I do not wish here to enter into details as to the names of the subjects that our students will study during the first three years and the names of the subjects that they will specialise in the fourth year. If I find my countrymen and members of the Syndicate willing to accept my scheme then I can draw out an outline of subjects to be taught in the 1st, 2nd, 3rd and 4th year classes One can understand what the nature of the subjects will be from the various departments that I have mentioned in the next paragraph

There should be a farm attached to the college Besides lecture and laboratory work for the regular students and short course of apprenticeship the work can be divided into following departments —

1 The Agronomy Department 2 The Animal Husbandry Department 3 The Dairy Department 4 The Poultry Department (The Hindu students will have objection in working in this department, for them the work will not be compulsory) 5 The Horticultural Department 6 The Farm Department 7 The Mechanical Department 8 The Biological Department 9 The Plant Breeding Department 10 The Soil Department 11 The Bacteriology Department 12 The Veterinary Science Department 13 The Sericulture Department 14 The Surveying Department 15 The Promotor's Cooperative Demonstration work Department Students will be sent in rotation to these departments and will take their turn at a variety of jobs clear and dirty easy and difficult without favour or distinction

A limited amount of time devoted to practical operations on the farm and in the various departments enumerated above, will be well spent especially by those who have not had much practice in farm work The students will be paid for their labour, and they can

spend the amount so allowed in paying board bills, buying clothing, books etc. In this way the profit for a good attendance at the College will be ensured. There is no doubt that the products of such a new institution will be of greater use to India than the class of students which are coming out to day from Pusa and Sahour. The entire farm work cannot be managed by regular students labour, and there may be some such work which our students will hesitate to do or are unaccustomed, so we need few extra hands, I mean coolies, but our aim will be to engage them less.

In this College there should be no line of demarcation between a farmer and a Director or Principal or Professor. The farmers should be given the liberty of visiting this college and the experimental farm. We will arrange to hold farmers' excursions from each district during the growing season of the crops to the proposed college. We in co-operation with the Railway company make arrangements for special train, for bringing the farmers and their families from every

part of the Province at a reduced fare. When the parties will arrive, the Director of Agriculture, the Experimentalist of the Farm, Professors, student assistants will guide the visitors and explain all the experiments that are being made on the plots. The farmers will hold discussions right on the plots, and the guides should help them in solving the various problems. This sort of enterprise has done immense good in American agriculture. We think that this is one of the best ways of teaching scientific agriculture to our ryots especially those who have no time to attend long course or money to spend on college education.

If my countrymen, rich men and leading educationists think that an agricultural college founded on this model will be successful, and that the bread problem can be solved to a great extent in this way I will request them to cooperate amongst themselves and to be busy in establishing such a college. The wealth of India lies in her soil, and her strength lies in its intelligent development.

## THE PAINT INDUSTRY IN INDIA.

**I**T has great possibilities in India. The consumption of paints and colours is rapidly extending in all parts of the country for building materials, carriages, vehicles, lamp posts, bridges, furniture, and the like, but it has not yet progressed as much as is possible. Paint has two main uses first of all for colouring material, and secondly for preserving it. It is made of a mixture of oil turpentine and what are called pigments. These are added to give the desired colour. The most important material is linseed oil. This is obtained by pressing flax seed which is grown in several parts of India. A large part of the seed is exported to Europe and pressed there, the cake or what is left being sold as cattle food. As there is little market for this in India much is sent to Europe. Still there has grown up in India a very flourishing oil pressing trade and as well several factories

can refine and boil oil. Thus as in the case of soap, both the cultivator, the manufacturer, the workman and the consumer—all are interested in the development of the oil pressing industry. Another material which is used to dilute the mixture of oil and pigments is turpentine. This is obtained from the resin of certain kinds of pines. The turpentine industry in India is of quite recent origin, indeed in sixteen years the production of turpentine increased from 1,000 gallons to 120,000, and it is expected to go on increasing. The most encouraging results have been obtained from the Forest Department factories at Jallo in the Punjab and Bhowali in the United Provinces, and still more is hoped for from the new factory at Bareilly. So zemindars who own pine forests have an interest in developing their property.

*(The United Provinces Journal)*

## INVENTIONS AND THEIR APPLICATION.

By Mr B S Ramaswami Ayyar, B A , L T

### Their Origin

**W**HEN the 19th century and especially the latter half of it is teeming with inventions of all kinds, one is likely to ignore the Origin of inventions and the progress and improvement made therein century after century. It seems essential therefore to say something of their originative outset.

Man has progressed through ages in utilising the forces and products of nature for his own ends of accumulating and transmitting his knowledge by tradition or writing and thus leading to his present Supremacy. The existence of modern races in low stages of culture facilitates the study of the origin and evolution of the implements of prehistoric times. Both sticks and stones were primarily employed as weapons, but the later developments of both forms were seen in numerous directions. Man progressed gradually from the position of a tool user to that of a tool maker. The course of evolution is again from stone to copper, from copper to bronze and from bronze to iron. So then all the stone implements have been replaced by iron ones. The primitive occupation of hunting induced man to have some weapons for defence not only for bringing down the game but also for fighting other hunters who might try to seize the spoil. The herdsman is really a step in advance to that of the hunter. But it is the agriculturist who must be regarded as the founder of civilisation. The earliest forms of vegetable foods were those secured by the mere labour of plucking. There has been a graduation of difficulties before agriculture on a large scale was introduced. New implements and tools were needed. From the pointed digging stick to the pick and hoe

and from these to the simple plough with its later improvements for cutting into the soil, freeing it from underlying parts and turning it over in a regular and definite manner we have in uninterrupted line of evolution of invention which has led to the highest types of modern plough. The last great change in the character of weapons was made by the introduction of gun-powder. The new weapons are far more deadly than the old, and are coming into world-wide use. The first thing most savage tribes borrow from civilization is the use of fire-arms, and in all probability will soon be things of the past.

The discovery of fire is one of the great landmarks in the history of the world. The premature method of obtaining fire rendered other methods superfluous except where matches are expensive or unobtainable. The discovery of fire introduced, or rather satisfied a new set of wants. Man has been described as a cooking animal. It is true that many tribes devour meat raw and rotten, but nevertheless the desire to render food more palatable by cooking has played a large part in the improvement of utensils. The discovery of pottery is often taken to imply a very high state of progress, and this is perhaps true. The pottery of primitive people is shaped by hand alone and the potter's wheel is only a later introduction.

Next the arts connected with *clothing* may be considered. In many instances the surface of the skin is regarded as a favourable situation for the painting or tattooing of ornamental designs, which often have a totemic or tribal significance. The idea of clothing probably originated at any rate in warm climates in intimate association with the

decoration of the body either in the above mentioned way or by means of ornamental girdles and pendants. The art of spinning again has been developed very much that it has given rise to the establishment of spinning mills. As regards dwellings man has advanced from the stage of building shelters of leaf boughs to that of building modern living houses. Taking the case of *locomotion*, and *transport*, the invention of the wheel made rapid locomotion possible under ordinary circumstances. From the Dug out to the Dead-nought is a far cry. A word may be said about the musical instruments. From the twang of the bow string of the hunter to the brilliant performances of the modern pianist is an advance in the art of music which has been dependent upon the associated evolution in the instruments employed. Again in the realm of *decorative arts*, such as the carvings or paintings on weapons, tools, houses etc. there is definite proof of the continuous nature of the steps by which the evolution of man's creations has proceeded. In commerce again there is much of interesting history from the system of barter to the introduction of money as a medium of exchange. So also in the system of *counting*. Lastly the history of the arts of *writing* and *painting* from the hieroglyphics to the present alphabet on the one hand and from the system of using page blocks to the modern improvements will afford an interesting reading.

*Application of natural agents to Industry and Commerce* —It is noteworthy to study, after examining the origin of inventions, how the natural agents have been brought under control and applied successfully to the purposes of industry and commerce. It is the Modern Engineer that is somewhat responsible for this. So it seems better to say a few words about him before taking into consideration the forces he keeps under his control. He figures a little prominently in connection

with these inventions. As the conditions of civilised life become ever more complex, the engineer is of necessity compelled to devise newer and more efficient means whereby the available forces of nature may be applied in the service of mankind. Each improvement effected in any branch of engineering serves as a foundation for extension in other and widely different directions, and it is this essential element of interdependence that compels the engineer to acquire a comprehensive knowledge of every branch of his profession, so that he may be able to profit in his special work by the advances of others. The natural sources of energy are distributed in one condition or another over the whole world, but the practical value of source is determined by the nature and continuity of the supply and by the ease with which it may be transformed to a convenient and concentrated form. Of the present available sources the most important are the fuel, coal and oil, and water but there are other and greater sources of molecular energy which as yet are in the hands of the physicist and far beyond the reach of the engineer who would employ them. Of the many natural forms of energy water power lends itself most readily to industrial purposes, and where it exists in suitable quantities it is applied with very economical results to the driving of machinery, which may then be distributed to the other districts where water power is not available. Air-power also is used to a little extent for industrial purposes. Windmills are most generally employed for the pumping of water, the grinding of grain and other agricultural purposes, but their use is more or less limited to certain situations where the winds are constant. Owing to the limited distribution of air and water-power, and to the variable character of the supplies, only a small portion of the total power required for industrial purposes is obtained from these

natural resources, the greater portion being more indirectly derived from the combustion of solid and liquid fuels—coal, wood, peat and oil—the most important is coal, but for many purposes the use of oil is becoming very general such as for the direct driving of internal combustion engines &c. It may perhaps not be out of place to say a few words about the electric power and to indicate the principle involved in making the operation of the various machines understandable. The elementary principle involved in the construction of the dynamo, for instance, may be briefly stated thus—When the lines of magnetic force surrounding the poles of a magnet are cut by a loop of wire moved through them, a current is induced in the wire, and the flow continues in the closed circuit so long as the lines of force are being cut. Without describing in detail all the complete particulars about these things, it will be sufficient to merely mention the fact that alternating currents are now extensively used for the driving of motors and also for lighting. One circumstance therefore which has great influence on the rise of manufactures in particular districts and towns is the kind of power used.

At first all manufactures are carried on by hand-power. This is a slow and laborious process. Those who have read George Eliot's 'Silas Marner' can easily form an idea of the conditions under which the English and Scottish hand-loom weavers worked. The next stage began when water-power was used to drive machinery. Under these changed circumstances the manufacturing population began to gather near running water, and to remove from places where this was not to be had. Rapid hill torrents give more abundant power than sluggish rivers winding over a plain. But power is not everything. The facility of transport also counts for much in order that a town may become a manufacturing centre. For instance the Mersey brings

Liverpool and the cotton manufacturing town of Lancashire into communication with cotton growing states of America. The next change in the distribution of manufactures arose out of the substitution of steam for water power just as the introduction of water-power attracted manufactures towards the rivers. So the introduction of steam-power attracted manufactures towards coal fields. Where iron occurs in combination with coal, this leads to a rapid increase in the number of industries and the density of population in a particular manufacturing district. Thus the iron manufacture is very important on the Lancashire coal fields where iron is found. The end of the 19th century witnessed another change which will greatly affect the distribution of manufactures in the present century. This is the introduction of electricity which is most cheaply generated by water power. Just as coal attracted industry to the coal-fields, so the introduction of electric power will attract industry back to the sources of water-power. That the chaudiere falls should light the city of Ottawa and drive its electric cars seems natural enough in a large and rapidly growing city. The same power can be applied to its manufactures which have therefore every chance of rapid development. The catrids of the Nile will probably be used to generate electricity for transport, lighting and general industrial purposes. Grand Schemes are pending in connection with the Sivsamudram waterfalls in the Mysore State. But the great source of electric power in the world will eventually be the Niagara falls. Since it has been found possible to transmit electric power for long distances, there is hardly any limit to the possibilities which the unused power of Niagara represents.

#### Modern Inventions

After the 15th century each century was marked by a definite advance. The 17th

century is remarkable for the proposes of physical science and mathematics such as the invention of the telescope by Galileo, of the barometer by Torricelli, of steam engine by James Watt etc. The 19th century in the rate of its scientific and economic progress claims to be above all its predecessors, the century of inventions, especially the second half is more noteworthy than the former. Distance has vanished in comparison with the past, and time has been prolonged, because so much more can now be done in a given time than could be done even a decade ago. And it is science that has to be thanked for it all,

since every one of these time—saving, labour saving devices, means of rapid communication and transport etc., is the culmination of the ceaseless endeavours of generations of Scientists. The most certain way of expanding our manufacturing activities by producing new products, improving existing ones and attaining greater efficiency in our factories, is to realise this dependence of industry on Science, and to employ the technologist to a larger extent in the factory. The utilising of waste products by the chemist is one familiar example.

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## PROPOSED INDUSTRIAL MUSEUM.

By Mr R Thirumathi Rao, B A , L T

**I**N their Press Communique dated the 27th August 1919 the Government of Madras have published the letter of the Director of Industries together with annexures, regarding the proposal to establish a permanent Industrial Museum in Madras, and have invited public criticism thereon.

The Viceroy and the Secretary of State have frankly declared in their report on Indian Constitutional Reforms that English theories regarding the limits of state intervention in Industrial Development are inapplicable to India and that if the resources of this country are to be developed the Government must take action. In their opinion, India will consider herself entitled to claim all the help that her Government can give to enable her to take her place as a manufacturing country. They urge a forward policy in industrial development to give India economic stability, to satisfy the aspirations of her people, to provide profitable investment for Indian Capital, to correct the evils of a too literary education and above all to divert

Indian thought to practical ends to qualify the people to shoulder the additional responsibilities which the new constitution will lay upon them. They have also clearly pointed out that the Development of India's natural resources becomes a matter of Military necessity under modern conditions of war and there can be no reason for hesitating to move forward boldly in a matter in respect of which considerations of military security, political expediency, and economic advantages are coincident and are in agreement with the interests of the Empire as a whole. These considerations led Lord Hardinge's Government to recommend the appointment of the Indian Industrial Commission and the present Secretary of State to announce a change of policy.

The Industrial Commission after elaborate enquires has recommended that the work of the provincial Department of Industries should be classed under the following heads —

(1) The direct encouragement of industries including a large share in industrial research

work. The provision of technical advice and assistance to industrialists, the examination of applications for special concessions and the grant of loans to develop cottage industries.

(2) The collection and distribution of commercial and industrial intelligence, the work of passing Government Indents and of purchasing and inspecting certain classes of Government Stores, the organisation of markets for local products, the conduct of special enquiries and industrial surveys, the holding of industrial exhibitions and the management of Commercial and industrial museums.

(3) The control of technical and industrial education, funds for the purpose being provided for from the budget of the Director.

(4) The control of the staff employed for the local administration of the Electricity, Factories and Boilers Acts, and the furnishing of advice to Government on the industrial and Commercial aspects of the Mines Act and of the rules for mining leases and prospecting licenses.

In pursuance of the policy enunciated by Government and supported by the Indian Industrial Commission, the Director of Industries has recommended to Government the establishment of a permanent Industrial Museum in Madras and the absorption by it of the Victoria Technical Institute. His idea is to make the Museum the nucleus of the Intelligence Branch, which is to be mainly composed of an Inquiry Bureau, a Library and a Museum. The library will contain Commercial, Industrial and Technical literature and the Museum will be intended for the exhibition of the raw products of this country and the goods manufactured with them either in this country or outside it. If a central Museum is established the collections in the Museum may be sent as exhibits to the fairs and exhibitions held in the mofussil and their

educative value will thus be enhanced. The Director says that till now the Department has professed to contain an Intelligence Branch and to answer technical, commercial and industrial enquiries and in future the Intelligence Branch will serve as the link with the Imperial Trade Commissioner and with the Director general of Commercial Intelligence.

The nomenclature of 'Industrial Museum' suggested by the Director to the proposed institution will be more suitable than 'Commercial Museum' but we would prefer it being called 'Madras Museum of Commerce and Industry' as being more appropriate being more comprehensive.

We agree with the Director that the Victoria Technical Institute may be more advantageously absorbed by the Department of Industries. It was formed in the year 1818 and placed in possession of the Victoria Jubilee and Memorial funds with the extremely ambitious object of imparting artistic, Commercial and industrial instruction to persons of either sex by establishing technical libraries, museums, colleges, schools and workshops, by holding examinations in Technology and granting certificates, by buying and selling articles and similar means. Unfortunately owing to lack of funds and proper direction of work by specialists, the Institute has been forced to limit its work merely to the buying and selling of articles of artistic value. The President of the Council, has expressed keen dissatisfaction with being compelled to work in so limited a field and has asked for Government help to enlarge its activities and increase its usefulness. If it was forthcoming he thought it would be necessary to change the constitution of the Council which at present consisted of amateurs, and busy men in other vocations. The work of the Institute is so little known to



the public that when Mr Morrison suggested that gentlemen interested in particular crafts and industries might conduct parties round the exhibits to induce them to take some interest in it, the President expressed a doubt whether they could at all get people to come.

Under these circumstances, considering that the Institute has been guided till now by amateurs and has not produced any result worth considering it may be handed over by the Public without any hesitation whatever to the charge of the wholetime Director of Industries for increasing its usefulness in promoting artistic handicrafts and Cottage industries in particular. We are, however, very thankful to the Committee of the Institute for the encouragement they have given to Indian handicrafts and we have nothing but admiration for their having achieved that measure of success in their self-imposed but well nigh difficult task of preserving from extinction the decaying artistic handicrafts of South India.

We suggest that in the proposed Industrial Museum, should be exhibited all articles of import and export and all vegetable, animal and mineral products of economic importance available in India and in particular South India. Detailed information should be available to the public regarding the composition, suitability, extent and distribution of raw materials suitable for the manufacture of dyes, soaps, candles, pottery, cement, glass, paper, mineral acids, fertilisers, leather &c, and the smelting of iron, copper, lead and aluminium. The main object of the Department should be to supply general information to the public regarding the commercial utilisation of the economic products exhibited in the Museum. With a view to this, every

promising new product should be investigated in the Research Laboratories of the Imperial Institute or elsewhere on a large scale and the results of such investigations carried out by Technical experts should be made available to the Public in the libraries attached to every one of the Indian Industrial Museums. To avoid waste of effort and overlapping of work all such museums must be in close touch with each other and preferably controlled by a single organisation. When the Hydrographic Survey of the country is completed it should be possible for the Director-General of Industries to elaborate schemes for the most efficient application of the Hydroelectric power that may be developed.

The Department of Industries should co-operate with the Department of Agriculture in improving the quality of our textile raw materials, cotton, wool and silk. The Director of Industries should start without any delay some cottage industries as a corrective to the inevitable evils of the large scale industries which are now cropping up like mushrooms and among these may be included the manufacture on a small scale of glass, matches, pencils, handmade paper, paints, varnishes, sericulture, agriculture, mule working, toy-making, rice making, knitting, hand loom weaving and the like. The Director of Industries should work in close co-operation with the Registrar of Co-operative Societies and vigorously spread cottage industries by actual demonstration to the public and by their introduction in schools in suitable localities.

(We do not agree with our correspondent in the view expressed by him. A Commercial Museum organised by a private enterprise on the lines of the Bombay Commercial Museum is welcome. A detailed scheme appears elsewhere. Ed.)

## THE MADRAS COMMERCIAL MUSEUM.

By **Organiser**

**T**WO years ago, the Bureau of *Commerce & Industries*, Post Box No 353, Madras was brought into existence by Mr G Narasimham as an Institution for the encouragement, organisation and development of Indian Industries and Commerce and with a view to supply information to persons interested in Trade and Industries etc., and much useful work has been done by way of answering enquiries received from the different parts of India. At the same time, the idea of organising and conducting a *Commercial Museum* as an adjunct to the Bureau was also circulated throughout the country and advertised for a long time in the "Hindu" and elsewhere. Numerous letters have been received emphasising the need for such a Museum along with a few specimen articles for exhibition. But the idea was put off to a more favourable time with the intention of making it a permanent and more beneficial institution.

2 During the course of interviews which Mr Narasimham had with Mr Innes, I C S., and Mr R W Davies, I C S., both Ex-Directors of Industries, the necessity and usefulness of the Bureau and the Commercial Museum were considered and discussed and the idea was much appreciated by them. It may not be out of place to refer, in this connection, to the interpellations in the Local Legislative Council in the matter of establishing a *Commercial Museum* at Madras.

3 The objects of the Bureau are to diffuse knowledge and information and to organise and manage institutions for the purpose of developing and encouraging Industries, Sciences, Arts, Manufactures and Commerce by —

(1) Organising and maintaining a *Commercial Museum* at Madras

(2) Starting Journals or Magazines

(3) Establishing a Library and Reading Room, Laboratory and Research Institute and Polytechnic Institute

(4) Organising meetings and the distribution of pamphlets, bulletins, catalogues etc.,

(5) Creating openings for the employment of capital and labour

(6) Granting scholarships, rewards or honours for services rendered for the productions, inventions, discoveries or improvements tending to increase trade, industries and commerce and the material wealth and prosperity of the country.

(7) Bringing to the notice of the capitalists enterprises in which they might invest money and establishing an employment Bureau for trained hands in such enterprises.

4 Owing to the suspension of all foreign trade for want of shipping facilities during the war and the consequent inactivity of the Industrial life in the country and the abnormal rise in prices, India has suffered to an extent unknown or even undreamt of in the past years. The serious economic situation and famine conditions prevailing all over the country and the tremendous unrest among the labouring classes is a result of the termination of the war demand the closest attention and the united action of the Industrial and Mercantile Community as well as the ablest thinkers and public workers of India. India is at present exposed to the keen competition from the foreign countries which have been better organised, and are more enterprising and prepared to capture the markets of the world. While recognising the superiority of the foreign goods and the up-to-date methods employed by the foreign competitors in the

manufacture and the marketing of their products, one must admit the fact that the Indian market is being constantly flooded with the foreign goods, in many respects of cheap and inferior quality with the object of "dumping". The Indian manufacturer is ignorant of the exact sources of raw materials and machinery for industrial purposes while the Indian merchant does not know where and what articles of interest are made. For many years to come, India must continue to depend upon the foreign made goods for most of her immediate requirements but she must simultaneously make every possible effort to educate her people on the possibilities of manufacturing at least her own requirements in the country.

5 Hence, the organisation of a *Commercial Museum* in Madras becomes an urgent necessity as it will demonstrate to the enterprising merchants and manufacturers here in a practical way what goods are made in this country, what raw materials are available here, what the defects are in the Indian goods as compared with the foreign goods competing in the Indian market what steps should be taken to study and rectify such defects and to find suitable markets for the Indian goods, both raw and manufactured. It has been recognised in all civilized countries of the world that the most effective method of educating the people and of developing their industries and trade consists in the establishment of Museums and Exhibitions where samples are exhibited and their economic, Industrial and Commercial value is demonstrated.

6 A press communique states that it is proposed to hold a British Empire Exhibition in London in the summer of 1921 with the object of promoting the extension of Imperial Trade by bringing before buyers from all parts of the world exhibits of the Industries, Inventions, raw materials, and the products of

the Empire and the scheme has been approved by the Board of Trade.

7 In India, the Commercial Museum at Calcutta is a Government organisation and forms part of the Commercial Intelligence Department, while the Bombay Commercial Museum is conducted as a private enterprise by a few individuals seeking help, sympathy and co-operation but without receiving pecuniary contributions or grants from outside. It has been organised on a self supporting basis on practical business lines to meet the needs of the small and big merchants alike. It derives its income from the fees charged to exhibitors, visitors other than merchants and manufacturers) rents of furniture and advertising space and commission on sales effected etc. In Madras, the *Commercial Museum* is intended to be organised on the self supporting basis of the Bombay Commercial Museum by a private enterprise and it is hoped that the requisite support, co-operation and sympathy both from the interested public and the Mercantile Community will soon be forthcoming. The objects of the Madras *Commercial Museum* can be attained by —

(1) The exhibition of samples of indigenous and foreign products, raw materials, semi-manufactured and manufactured articles, machinery, tools, models, designs and specimens of arts.

(2) The exhibition of samples of goods imported into the Indian market from foreign countries with which Indian manufacturers and Industrialists have to compete and in which Indian merchants are interested in importing same, thus serving a double purpose of enabling Indian Capitalists to know the demand that exists for manufacture and export of same, and of enabling Indian merchants to understand their suitability for the Indian market and to import same, (3) To encourage the cottage workers and smaller

Industrialists to market in such things as bangles, buttons, combs, cutlery, glassware, matches, soaps, candles, pencils, pottery, matting, baskets, lace, embroidery, cloths, &c.

(4) The demonstration of manufacturing processes whenever practicable with the aid of experts and exhibitors.

(5) Effecting sales of the articles exhibited on terms and conditions mutually agreed upon with the Exhibitors.

(6) Maintaining an Enquiry Department to supply information to exhibitors, merchants and others.

(7) Publication of catalogues, annual reports and guides.

These functions can be duly performed, with great advantage and economy in the best interests of the country by the establishment of the Museum by a private enterprise on the lines of the Bombay Museum. The monthly Journal 'Commerce and Industries' started in July last has been doing very

useful work and has been much appreciated by important public men interested in trade and industry throughout India. The popularity and usefulness of the Museum can be widened by making this Magazine an organ of the Museum. The success in the organisation and maintenance of this Museum which involves the main feature of imparting education, information, and co-operation to the people, both industrial and commercial, leading to the general economic development of the country as a whole, depends to a considerable extent on the support, co-operation and sympathy with which this scheme is received by the interested and patriotic public. It is earnestly hoped that many large-minded and generous patriots will come forward with their support and co-operation for the speedy fulfilment of the objects of the Museum. The initial capital outlay necessary for the purpose of raising a suitable building in a prominent locality in Madras (say Mount Road) is estimated at 2 lakhs of Rupees.

## A ROYAL PROCLAMATION.

**G**EORGE V, by the Grace of God of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India, to My Viceroy and Governor General, to the Princes of Indian States and to all My subjects in India of whatsoever race or creed Greeting.

1 Another epoch has been reached to-day in the annals of India. I have given My Royal assent to an Act which will take its place among the great historic measures passed by the Parliament of this Realm for the better government of India and for the greater contentment of her people. The Acts of 1773 and 1784 were designed to establish a regular system of administration and justice under the Honourable East India Company. The Act of 1838 opened the door for Indians to public office and employment. The Act of 1858 transferred the Administration from the Company to the Crown and laid the foundation of public life which exists in India to-day. The Act of 1861 sowed the seed of re-

presentative institutions and the seed was quickened into life by the Act of 1909. The Act which has now become law entrusts the elected representatives of the people with a definite share in the government and points the way to full responsible Government hereafter. If, as I confidently hope, the policy which this Act inaugurates should achieve its purpose the results will be momentous in the story of human progress, and it is timely and fitting I should invite you to-day to consider the past and to join Me in My hopes of the future.

2 Ever since the welfare of India was confided to us it has been held as a sacred trust by our Royal House and Line. In 1858 Queen Victoria, of revered memory, solemnly declared herself bound to her Indian subjects by the same obligations of duty as to all her other subjects and the equal and impartial protection of the law. In His message to the Indian people in 1903 My dear father, King Edward VII, announced his determination to maintain unimpaired the same principles of humane and equitable administration. Again in His

Proclamation of 1908 He renewed the assurances which had been given fifty years before and surveyed the progress which they had inspired On My accession to the Throne in 1910 I sent a message to the Princes and Peoples of India acknowledging their loyalty and homage and promising that the prosperity and happiness of India should always be to Me of the highest interest and concern In the following year I visited India with the Queen Empress and testified My sympathy for her people and My desire for their well being

3 While these are the sentiments of affection and devotion by which I and My Predecessors have been animated, the Parliament and the People of this Realm and My Officers in India have been equally zealous for the moral and material advancement of India We have endeavoured to give to her people the many blessings which Providence has bestowed upon ourselves But there is one gift which yet remains and without which the progress of a country cannot be consummated the right of her people to direct her affairs and safeguard her interests The defence of India against Foreign aggression is a duty of common imperial interest and pride The control of her domestic concerns is a burden which India may legitimately aspire to take upon her own shoulders The burden is too heavy to be borne in full until time and experience have brought the necessary strength, but opportunity will now be given for experience to grow and for responsibility to increase with the capacity for its fulfilment

4 I have watched with understanding and sympathy the growing desire of My Indian people for representative institutions Starting from small beginnings this ambition has steadily strengthened its hold upon the intelligence of the country It has pursued its course along constitutional channels with sincerity and courage It has survived the discredit which at times and in places lawless men sought to cast upon it by acts of violence committed under the guise of patriotism It has been stirred up to more vigorous life by the ideals for which the British Commonwealth fought in the Great War and it claims support in the part which India has taken in our common struggles, anxiety and victories In truth the desire after political responsibility has its source at the roots of the British connection with India It has sprung inevitably from the deeper and wider studies of human thought and history which that connection has opened to the Indian people Without it the work of the British in India would have been incomplete It was therefore, with a wise judgment that the beginnings of representative institutions were laid many years ago Their scope has been extended stage by stage until there

now lies before us a definite step on the road to responsible Government

5 With the same sympathy and with redoubled interest I shall watch the progress along this road The path will not be easy and in the march towards the goal there will be need of perseverance and of mutual forbearance between all sections and races of My people in India I am confident that these high qualities will be forthcoming I rely on the new popular assemblies to interpret wisely the wishes of those whom they represent and not to forget the interests of the masses who cannot yet be admitted to franchise I rely on the leaders of the people, the Ministers of the future, to face responsibility and endure misrepresentation, to sacrifice much for the common interest of the State, remembering that true patriotism transcends party and communal boundaries, and, while retaining the confidence of the Legislatures, to co-operate with My Officers for the common good in sinking unessential differences and in maintaining the essential standards of a just and generous Government Equally do I rely upon My Officers to respect their new colleagues and to work with them in harmony and kindness to assist the people and their representatives in an orderly advance towards free institutions, and to find in these new tasks a fresh opportunity to fulfil as in the past their highest purpose of faithful service to My people

6 It is My earnest desire at this time that so far as possible any trace of bitterness between My people and those who are responsible for My Government should be obliterated Let those who in their eagerness for political progress have broken the law in the past respect it in the future Let it become possible for those who are charged with the maintenance of peaceful and orderly government to forget the extravagances which they have had to curb A new era is opening Let it begin with a common determination among My people and My Officers to work together for a common purpose I therefore, direct My Viceroy to exercise in My name and on My behalf My Royal clemency to political offenders in the fullest measure which in his judgment is compatible with the public safety I desire him to extend it on this condition to persons who for offences against the State or under any special or emergency legislation are suffering imprisonment or restrictions upon their liberty I trust that this leniency will be justified by the future conduct of those whom it benefits and that all My subjects will so demean themselves as to render it unnecessary to enforce the laws for such offences hereafter

7 Simultaneously with the new constitutions in British India, I have gladly assented to the establishment of a Chamber of Princes. I trust that its council may be fruitful of lasting good to the Princes and the States themselves may advance the interests which are common to their territories and to British India and may be to the advantage of the Empire as a whole. I take the occasion again to assure the Princes of India of My determination ever to maintain unimpaired their privileges, rights and dignities.

8 It is My intention to send My dear son the Prince of Wales to India next winter to inaugurate on

My behalf the new Chamber of Princes and the new constitutions in British India. May He find mutual good-will and confidence prevailing among those on whom will rest the future service of the country, so that success may crown their labours and progressive enlightenment attend their administration.

And with all My people I pray to Almighty God that by His wisdom and under His guidance India may be led to greater prosperity and contentment and may grow to the fullness of political freedom.

GOD SAVE THE KING-EMPEROR

## INDIAN STATES.

### Coffee Industry in Mysore

**M**YSORE is a great coffee-growing State and for nearly a hundred years the industry has been carried on. Of recent years it cannot be said that there has been any great development, in fact, in many places, large areas have been allowed to grow wild. It was the custom formerly for each estate to have a manager, but there has been a steady change in policy. It is now usual for one man to have charge of three, four or five estates. The result is that the number of planters in the district is now much smaller than it was a few years ago. This year the prices are such as to make the planters most happy, or they have reached a height never before touched in the memory of the present planters. It is true the exchange tells against them, but the margin is sufficient to cover the loss and to leave a handsome profit. Happy are those who are fortunate enough to possess large crops. The work of picking is just now beginning and for the next month or two all will be engaged in preparing the coffee to send to the coast. It is an interesting time on the estate just now, for the planter sees the results of his year's labour. From morning to night the coolies are hard at work, practically all working overtime in order to get the extra amount paid to those who exceed the standard measure. In some parts the crops have been exceedingly good, though in others the results are distinctly disappointing.

### TEA AND RUBBER PROSPECTS

At the present time a number of planters are experimenting with tea and rubber, though the acreage under cultivation is not large in either case. I understand that rubber has grown very satisfactorily on one or two estates, but several planters with whom I have discussed the situation appear to think there is very little prospect of

successful cultivation of rubber for the market. It is perhaps early to pronounce an opinion, but there do seem to be lacking the characteristics of the West Coast climate where rubber is grown successfully. Tea is almost an experiment which is still in its trial stage. At least one company is now paying its way after several years of hard struggle. The quality of the produce is a sufficient justification for extending the work in that district, and there is every reason to believe that when once the estate gets well settled it will pay a handsome profit. In two or three other places planters have opened out a considerable acreage for tea cultivation and the promoters believe that conditions are generally favourable to the industry. I understand that a number of ex-officers have applied for billets in connection with these industries, and if they have the planter's 'instinct' there are few occupations which can be more attractive. The work is not particularly strenuous, while there are unlimited opportunities for sport.—*Times of India*

### Travancore Finance

The final accounts of the Travancore State for the year 1094 M. E. (1918-19) are now available, and it is seen therefrom that the revenue and receipts of the Darbar during the year amounted to Rs. 181.83 lakhs and the ordinary expenditure to Rs. 160.95 lakhs. The transactions of the year under review have thus resulted in a surplus of Rs. 20.88 lakhs, and including the capital expenditure on the extension of the railway from Quilon to Trivandram amounting to Rs. 37,000, which is not charged to revenue, in a net surplus of Rs. 20.51 lakhs. It is worthy of note in this connection that although the area of Travancore is only 7,600 square miles, it takes the fourth rank among the Indian States

of India in point of revenue, and bids fair, at its present rate of progress, to march abreast of Baroda, the third of these States, whose revenue is only a trifle more than Rs 200 lakhs. His Highness the Maharaja of Travancore, and his able Dewan, Devan Bahadur M. Krishnan Nair, deserve to be heartily congratulated on the conspicuous success which has attended their financial policy during the past quinquennium. The revenue which stood at Rs 154.75 lakhs in 1089 M. E. (1913-14), the year towards the close of which Mr. Krishnan Nair took charge of the office of Dewan, fell to Rs 149.15 lakhs in the following year, while the ordinary expenditure which stood at Rs 151.85 lakhs rose to Rs 162.22 lakhs. While there was thus a decrease of Rs 5.60 lakhs under revenue, there was an increase of Rs 10.39 lakhs under expenditure. This was mostly due to the sudden economic dislocation consequent on the war which broke out towards the very close of 1089 M. E. The Darbar immediately took stock of its finances, and found that, as against an increase of 23.2 per cent in the revenue, there was an increase of 36 per cent in the expenditure during the previous quinquennium. The unstable equilibrium called for immediate adjustment and in laying down the financial policy of the Darbar for the future, the Dewan stated in his opening address at the twelfth session of the Sri Maham Populu Assembly:—The time has now arrived for the receipts and expenditure of the State being judiciously balanced. It would be dangerous to depart from the principle of equalling the year's income and expenditure, and the best and most effective means of achieving this end is in engaging the serious attention of Government. Government rely on the hearty co-operation of all heads of department in reducing expenditure without impairing efficiency.

Effective steps were promptly taken to solve the grave problem with the result that the ordinary expenditure of the succeeding year, viz., 1915-16 fell from Rs 162.22 lakhs to Rs 145.76 lakhs, while the revenue rose from Rs 149.15 lakhs to Rs 152.80 lakhs. During the year following the revenue again rose to Rs 163.44 lakhs, showing an increase of Rs 8.69 lakhs over the prewar year of Rs 1913-14 while the expenditure also rose to Rs 153.24 lakhs. During the subsequent year, again the revenue further rose to Rs 165.90 lakhs and the ordinary expenditure to Rs 161.56 lakhs. The accounts of 1094 M. E. have shown an increase of Rs 15.33 lakhs under revenue and a decrease of Rs 61,600 under expenditure. The ordinary transactions of the Darbar have thus resulted in a surplus every year during the quinquennium in which the present Dewan has held charge of the administration except during the first year of the war. The revenue more than gained its equilibrium during the third year partly in consequence of an increase in the duty on salt from 1 lb. Rs 1 to 1 lb. Rs 1.4 per pound and of the imposition of an export duty on tea at the rate of 13h Rs. 1 per 100 lbs. from March 1916 in pursuance of similar measures adopted in British India, but mainly as a result of the efficient working of the several revenue yielding departments. The increase in the revenue to the extent of Rs 22.69 lakhs or by about 22 per cent during the last four years, nearly the whole of which was covered by the war is remarkable especially in view of the fact that no additional imposts have been introduced during the period except those under the two items already referred to. As against this increase in the revenue the ordinary expenditure during the period has fallen by Rs 127 lakhs in spite of the all round rise in the prices of materials and wages of labour.

## SHIPPING ENTERPRISE.

FOR some time past considerable discussion is being carried on in the Press regarding the improvement of Cochin harbour. With the growing influence of Cochin as a commercial centre the scheme has attracted the attention of businessmen everywhere. In this connection, the following letter from a correspondent will be read with interest.

Some Bombay capitalists propose to run a line of steamers between Bombay and Cochin for cargo and passenger traffic. It is reported that some time ago a representative of a leading Japanese shipping company in Bombay had made a reconnaissance of the place to

see whether there was any scope for a line between the two places, and that another ship-owner in Bombay is in negotiation with a new concern which has for the last year been in process of formation to establish a service. The Bombay man lately purchased four small steamers from the Ceylon Government, out of six which were used by the British Admiralty during the war. They were brought from Japan and two of them are retained by the Government. The negotiation is for the sale of these four steamers to the local concern. Failing this the Bombay ship-owners will probably run a line if the B. I. S. N. Co., did not step in the meanwhile.

## TOPICS OF THE TIMES.

## AGRICULTURE

**Agricultural Conference at Pusa.**

**T**HE 11th meeting of the Board of Agriculture in India opened on December 1, at the Agricultural Research Institute, Pusa. Mr J. Mackenna, Agricultural Advisor to the Government of India, presided, and Dr J. J. F. Shaw, Second Imperial Mycologist, acted as Secretary. Among those present were the Honble Sir Claude Hill, Mr G. Lindley Shute, Lt. Col G. K. Walker, Dr Harold Mann, the Honble Mr J. F. Dyer, Mr Carpenter, Chief Scientific Officer of Indian Tea Association, Mr L. Lewton Braun, Director of Agriculture, Federated Malay States, Mr L. A. Belinday, Director General of Commercial Intelligence and representatives of Kutch, Kutch, Kapurthala, Baroda, Mysore, Travancore and Gwalior States. Members of the Sugar Committee were also present. In opening the proceedings Mr J. Mackenna welcomed the members of the Agricultural Board and the visitors, especially Mr Lewton Braun, Director of Agriculture, Federated Malay States, remarking that this was the first occasion that the Indian Board of Agriculture was honoured by a visit from the Director of Agriculture of another part of the Empire and felt it would be to their mutual advantage. Mr Mackenna then proceeded with a survey of the more important events which transpired since the last meeting of the Board of Agriculture held in Poona in 1917.

One of the notable features of the last two years continued Mr Mackenna, has been the increased attention devoted to agricultural education. The subject was last discussed by the Board of Agriculture at Poona. The Board *inter alia* resolved that for the rapid development of agriculture in India a sound system of rural education based on rural needs, is essential and recommended the establishment as an experimental measure of a limited number of Agricultural Middle Schools to meet the probable demand for improved rural education. These suggestions have received serious attention in the provinces. Agricultural middle schools are being opened in Madras, Bombay, the United Provinces and Central Provinces, while in the Punjab agricultural education is encouraged in the existing vernacular and high English schools. A great impetus has been given to the cause of agricultural education by the distribution of imperial allotment for the purpose and as it is hoped there will be an annual

allotment of varying amounts, the outlook is bright. With regard to higher agricultural education the Lyallpur College has been affiliated to the Panjab University. Burma is having its own College and Bengal is considering the question of having one for that Presidency. The subject of high agricultural education has also received consideration at the hands of the Calcutta University Commission, and it is gratifying to note that they have advocated the introduction of agricultural courses in the University. Briefly they recommend that (1) there should be elementary agricultural course provided in some of intermediate Colleges suitable for Zamindars, officers of co-operative societies, district boards, teachers in rural schools etc. and (2) that facilities should be afforded in the University for training of a more scientific and elaborate nature of a limited number of students.

**SIR CLAUDE HILL'S SPEECH**

Sir Claude Hill addressed the members of the Agricultural Board in a lengthy but happy speech. We give below some important extracts:-

"This is to my very great regret the last time I have the honour and I may add the pleasure of addressing you as the member in charge of the revenue and Agricultural Department, and you will perhaps bear with me patiently, if in the course of my remarks I become somewhat personal. First of all, however, I will deal with some of those matters which emerge from your agenda and from the deliberations which have taken place at this Board meeting. Sir Claude Hill then referred briefly to questions of establishing provincial boards of agriculture, of improving official forecasts of crops and of measures for the prevention of famine. He then proceeded:-

The problem of cotton and the development of its cultivation in India, had to be grappled with and the Committee over which Mr McKenna presided so ably and which reported last year, has presented us with the most valuable document. If its importance is to be gauged, by the appreciation with which it has been received by the Empire Cotton Growing Association and the public then I think Mr McKenna and his colleagues are to be warmly congratulated. We are taking up the recommendations which they formulated as rapidly as possible and I hope that in the matter of



establishing cotton markets, publishing prices and licensing gins and presses as well as in the matter of encouraging the development of longer staple cotton, action may be taken in conformity with the report before I bid farewell to India. Thirdly, it seemed to Mr McKenna and me that the time has come to investigate thoroughly the position of sugar cultivation, manufacture and marketing in India, and, as you are aware, Mr McKenna's broad shoulders have undertaken this herculean labour also in conjunction with the distinguished colleagues, whom it has been a real pleasure to us to meet here. I feel confident that difficult though this task is more difficult even than the cotton problem we shall come, as the result of the Committee's labours information and advice of the greatest possible value to India presented logically and readily and I for one look with confidence as one result to the ready investment of Indian capital in developing the sugar industry. But I hope, I am not hypothesising my, if when I expires to you my conviction that though, as I have said we have been debarred owing to the situation, and the price which time spent to indicate it is necessary yet partly as I believe through the more attractive manner in which we are establishing our journals and other publications as well as owing to other reasons there is a very real development of indigenous public interest in the great industry which it is our duty to foster. Indications of this growing interest are shown on all hands and Mr Mont has told me that it manifested itself clearly in various ways during the past session of the Legislative Council at Simla.

#### AGRICULTURAL DEVELOPMENT

One thing certain is that the system under which agriculture has been administered—controlled and stimulated will be radically altered. Agriculture will not only be a provincial subject, but it will be administered by a Minister.

We may hope not only that State education for agriculturists has taken a start but that most of the major provinces in India will shortly be furnished with a well equipped college for higher education and for research in agriculture. Thus we have endeavoured to initiate a machinery for furthering developments which will now be entrusted to the Provincial Administrations through the hands of responsible Ministers.

#### THE POLICY OF THE FUTURE

As you are aware, speaking generally, our policy for the future will be to Indianise the Imperial Agricultural Service as rapidly as this can be done, having due regard to the maintenance of that high

standard of efficiency which all of you by your example, and influence have set. It will take a long time but it would have taken much longer if we had not paved the way for securing the highest possible standard of agricultural education in some of the provincial colleges to be supplemented at this institution. We have at the same time recognised that we shall for years to come require the best men procurable wherever recruited and in far larger numbers than in the past with the high qualifications possessed by yourselves.

#### TOWARDS THE GOAL

We find ourselves at a stage of advance in which it is possible to utilise the fruits of our humdrum labours by associating with ourselves in a greatly increased degree, our fellow citizens whom we have been educating up to the task. To some of us it may appear that agitation on their part to secure this right of equal service is not only prompted by racial considerations (and may seem to us therefore, a kind of ingratitude), but is actually premature. In regard to the first point, human nature is very much the same despite what Kipling has said in East as in West and I would merely ask each one of you to place yourself in the position of your Indian competitor and ask yourself whether you would have done very differently in the matter of agitation from what they have done. As to the second point surely it has never been a British characteristic to decline to incur some risk in the process of advance especially when this depends upon preparation by educative means. My hope, and indeed my firm belief is that the racial hostility which has inevitably made its appearance at all events in the struggle of Indian opinion to assert its right to equal opportunity for service on behalf of India is largely the result of present circumstances and will disappear when equal opportunity is given. I cherish the hope and I honestly believe that it is not a delusion, if and when we arrive at the stage of equal opportunity which is aimed at present, we shall find that racial antagonism will largely disappear and that we and our successors will be eagerly called upon by the Indians and Indian administrators to assist in India's development and advance. In other words I believe that if we have faithfully discharged our trust we shall discover that far from being unwelcome and far from our assistance and co-operation being regarded with jealousy which would appear to be the case now, Englishmen will be invited in increasing rather than in diminishing numbers to co-operate in the furtherance of the prosperity and growth of this great Empire."

The Board of Agriculture in its further sessions discussed, among others, the question of propaganda by writing story books and issuing bulletins the empowering of village panchayats to raise local rates & to initiate land acquisition proceedings for the development of agriculture, the question of conserving natural manures such as oil-cakes bones and fish, the better utilization of rain-fall, the improvement of fodder supply, the publication of correct statistical information with regard to food-crops and the prevention of strains of crops going out of the cultivation in famine years.

## INDUSTRIES

### Industrial Development

**D**R Gilbert Slater Professor of Indian Economics, in the course of an interesting and instructive lecture on the Industrial Development of South India has made several very useful suggestions from which we give below a few extracts -

#### FACTORS OF PRODUCTION

Text books on Economics are apt to tell you that the factors of production are Land Labour and Capital. I notice that people are apt to take hold of this statement and reproduce it with the air of uttering a valuable truth. But without a good deal of explanation it does not help. It rather misleads than guides those whose desire it is to develop new agencies of production. Let me beg of you to use your own intelligence instead of going to text books and to consider what is necessary for success in production.

Let us suppose that a group of Madras men resolve on entering upon the tanning and boot and shoe making industries in combination. They have then two out of the necessary factors of production (1) access to the necessary raw materials, (2) access to a sufficiently large market. What else do they require? Four more factors, three of which are immaterial, or I may say spiritual. They must have in the first place the enterprise to risk their capital resources and the determination to go through with the undertaking to the end; they must have in the second place the intelligence to plan wisely, to choose the right site for their factory to have it well designed to enlist the right manager sensible enough to discard the Indian delusion that it is profitable to underpay employees; they must have in the third place sufficient honour and business morality to abstain from attempting to cheat one another or the people with whom they enter into business relations. And they must also have sufficient cash and credit to be able to buy land, erect buildings, equip them with plant and machinery and employ labourers.

Once the business is well started success depends on good management. Good management has two aspects, external and internal. I have noted that the Madras University graduate in History and Economics has grasped the idea of good management in its external aspect. He understands the necessity of efficiency in the purchase of raw material and in the sale of the product. But, so far as I can discover, the idea of efficient internal management has never been the object of study

among educated Indians and I have found it very hard to give them any conception of what it entails.

#### THE CHIEF OBSTACLE

It is not the inefficiency of the ordinary workman which is in my opinion the chief obstacle to Indian industrial progress, but the inefficiency of the employing class. And if this is the chief obstacle it can be removed. India is not a country doomed to poverty by lack of natural resources. It is rather a country doomed to poverty because it has not yet taken the trouble to acquire the mental and moral equipment necessary to escape from poverty. Both public and private effort are necessary in order that India may acquire this equipment. Now is the time to concentrate energy upon this task.

Let me give you an example to illustrate the principle on which I think we ought to act. I have already referred to the old bad habit of exporting, at once raw skins and hides and tanning materials instead of tanning the leather in India. You are doubtless aware of the fact that this was interfered with this crude method of dealing with these products, and that during the war the tanning industry developed enormously, the exports of raw skins and hides fell to half the pre-war figure and that of leather doubled. What is more important the quality was excellent, and a new and much higher reputation for Indian leather was won. But this was because Government inspection stopped adulteration. Directly that inspection is withheld the practice reappears of soaking the hides in Epsom salts to increase the apparent weight while spoiling the leather. Is it not a folly and a shame that this should be permitted? If we have no consideration for the foreign purchaser of Indian leather if we have no regard for the good name of India in commerce, at least let us have some mercy on the honest tanner, who hates such methods, but is driven to adulterate like his neighbours lest by competition with them he is driven to bankruptcy. A big firm can hold out, because it can get a name and reputation for its own goods, but the small tanner's goods are mixed up with the mass of the product, and he gets a price determined by the average quality of the whole. The small tanner who adulterates more than the average makes a profit, he who adulterates less makes a loss. It is a vile and horrible system and as it has been proved during the war that inspection can be made efficient, it is the clear and manifest duty of the Government of India to maintain that inspection.

### THE DUTY OF GOVERNMENT

But the duty of Government in regard to industry is not confined to the negative function of preventing wrong doing. There is also the positive duty of taking such action for the encouragement of industrial development as under the particular conditions which prevail in India cannot be expected from private individuals and voluntary associations.

#### British Industrial Future

Sir Auckland Geddes in a recent speech declared that there were already employed in industry over 800,000 more men and women than before the war. With men coming back from the Services it would be necessary to absorb almost another million in industry if the population was to be employed. There would be a total of probably 15½ millions instead of 13,800,000 before the war, although the war losses from industry alone numbered about a million. The additions were caused by the stoppage of emigration for five years and the fall in the value of money making it absolutely necessary for many who had lived as dependents to go out to work. Then the increased independence of women had its counterpart in making men who formerly would have supported their daughters as a duty say 'Well women claim to be equal with men let them work in the same way.' He wished to guard himself from the inference that it was impossible to employ this large number of people. It was only possible, however, by the spirit of determination shown in the past.

With increased prices for export goods and the cost of living being up they had started a vicious circle. All that affected the power of competition. At the present moment industry was resting upon an artificial basis. Coal was selling below the actual cost. So far as this price was produced from coal exported, it was not having a direct effect on our industry, but in so far as it was got from bankers it was having a direct effect in freights on raw material and on outward freights.

Nothing had been giving the Government greater anxiety than the fuel position. They were on the extraordinarily difficult position that the pushing forward of their industry meant pushing into a noose and the more they pushed the tighter that noose would draw unless (1) there was more coal produced and got away from the mines or (2) some other form of fuel could be got to take its place. Both these remedies were being applied. The use of oil however, transformed the basis of the whole pre-war industrial system. Special ships had to go out to get oil, the ships that went for raw material

went out partly empty, and the goods coming back had to pay double freights, while, at the other end, they had not the coal, as formerly, to pay for the raw materials. The changes in the coal industry were moving in the direction of making the rest of the country much more independent of coal than before, but at a price which the whole country had to pay. That carried with it a complete change and a permanent alteration in the wage levels.

Britain had in his opinion the greatest opportunity in her history but they must rely on the intelligent co-operation of everyone. The British Government was not built for taking over the whole of industry. Their sort of Government could only provide opportunities for instruction and information and be ready to help at any moment. But the industries themselves, employers and employed and the merchants who found the markets had to be the keen moulders and architects of the new structure of industry.

#### Hand loom Weaving Industry

Mr F Hooghware, Principal, Serampore Weaving Institution after carrying on investigations in the various districts in Bengal has submitted his report in the course of which he has made the following suggestion —

I am fully convinced that if the local industries of this Province are to be improved a separate department known as the Department of Industries should be created and that it should have as its head a Director with at least three efficient assistants to deal with the primary industries of this Province namely 1. An officer who has a good knowledge of hand and power weaving and its allied branches 2. a chemist conversant with industrial chemistry and capable of conducting researches and 3. a mechanical Engineer with a sound knowledge of mining experience. He also points out that industries cannot be promoted or arising efficiently taught unless they are in some way under control and this can best be done by forming them into societies and Unions which work has been in this province entrusted to the Registrar of Co-operative Societies with the result that it has formed an impediment to the development of local industries for the simple reason that it has been subjected to dual control. For instance while the Registrar of Co-operative Societies has been entrusted with the task of organisation of artisans into Societies and financing of them, their industrial education has been entrusted to the Industrial department. And it often becomes a difficult matter for officers in charge of the two departments to work in harmony with each other. In the provinces where such dual

control does not exist the promotion and improvement of industries is considerably an easier matter

### Indian Dye Industry

The Committee of the Indian Merchants' Club and Bureau, Bombay, have made the following suggestions to the Government of India on the subject of Indian dye industry

*a* My Committee beg to suggest that the Government of India should get prepared a list of dyes which the United Kingdom can supply to India

*b* Proper inquiries must be made regarding quantities of different dye stuffs manufactured in the United Kingdom and a list should be as a rule given

in those cases in which the particular needs of India are ascertained

*c* There must be fixed a certain ratio of price to determine what should be considered a fair margin of difference between the price for British and non-British manufacture. Licenses should not be refused except when such a difference between the price for a British product and non-British product falling within the ratio fixed

*d* An advisory Committee consisting of three Indian merchants and two European merchants should be appointed to collaborate with Collector of Customs of each port

## INDUSTRIAL COMMISSION'S PROPOSALS.

THE following resolution dated Nov. 15, 1911 has been passed. The Government of India received the report of the Indian Industrial Commission on the 29th October, 1918 and the Local Government were addressed on 17th December, 1918 upon their views on certain questions of principle were asked for. On receipt of the views the Government of India placed before the Commission and the proposals before the Secretary of State in their Despatch dated the 30th June, 1919. The Secretary of State replied in his Despatch dated the 25th September, 1919. The report has been received. The report has been sent to the public since November, 1918, and has formed the subject of numerous comments and discussions both in India and in England. The Government of India have been asked to constitute Committees to deal with the proposals of the Industrial Commission for the creation of a Chemical Service and of an Indian Stores Department. The terms of reference and the personnel of each of these Committees will shortly be announced. With the Secretary of State's sanction the Government of India have ordered the reconstitution of the Indian Munitions Board as a Board of Industries and Munitions to perform the duties described in paragraph 6 of the Secretary of State's Despatch. The Government of India have expressed in paragraph 5 of their Despatch their high appreciation of the Indian Industrial Commission with which they are glad to find that the Secretary of State associates himself. The thanks of the Government of India are hereby conveyed to the Commission and to its President, Sir Thomas Holland, for their labours and for the comprehensive and well considered scheme set forth in their report. The Government of India are confident that the members of

this Commission will be able to look back to their work in years to come as the starting point of a new era of co-operation between the Government and the industrial public for the economic advancement of India and that their zealous endeavour to this end will find its best reward in the result which the Government of India confidently anticipate from it.

### Secretary of State's Despatch

The Secretary of State in his Despatch dated the 25th September accepted the principle as follows— "I accept two fundamental principles underlying the recommendation of the Commission first that in future the Government should play an active part in the industrial development of the country, secondly, that the Government cannot undertake this work unless provided with adequate administrative equipment and furnished with reliable scientific and technical advice. Following on the acceptance of these principles I agree that suitable equipped organisation should be set up in the provincial Governments and in the Central Government. In giving effect to this policy, State assistance will take various forms such as research, the survey of natural resources, technical and scientific advice, educational facilities, commercial and industrial intelligence, the establishment of pioneering and demonstration factories, financial help, the purchase of Government stores in India, whether in the usual way of business or under a guarantee of purchase over a fixed period and probably also fiscal measures. The extent to which and the manner in which assistance under each of these heads can appropriately be given will, doubtless, be considered by your Excellency's Government

## RESEARCH AND INVENTION.

### New Theory of Universe

**I**N the rooms of the Royal Society, at a joint session of the Royal and Astronomical Societies, the results obtained by British observers of the total solar eclipse of May 29, were discussed.

The greatest possible interest has been aroused in scientific circles by the hope that rival theories of a fundamental physical problem would be put to test and there was a very large attendance of astronomers and physicists. It was generally accepted that the observations were decisive in the verifying of the famous physicist, Einstein, stated by the President of the Royal Society as being the most remarkable scientific event since the discovery of the predicted existence of the planet Neptune. But there was difference of opinion as to whether science had to face merely a new and unexplained fact, or to reckon with a theory that would completely revolutionize the accepted fundamentals of physics.

SIR FRANK DYSON, the Astronomer Royal, described the work of the expeditions sent respectively to Sobral in North Brazil and the island of Principe off the West Coast of Africa. At each of these places if the weather were propitious on the day of the eclipse it would be possible to take during totality a set of photographs of the obscured sun and of a number of bright stars which happened to be in its immediate vicinity. The desired object was to ascertain whether the light from these stars, as it passed the sun, came as directly towards us as if the sun were not there, or if there was a deflection due to its presence, and if the latter proved to be the case what the amount of the deflection was. If deflection did occur the stars would appear on the photographic plates at a measurable distance from their theoretical positions. He explained in detail the apparatus that had been employed, the corrections that had to be made for various disturbing factors and the methods by which comparison between the theoretical and the observed positions had been made. He convinced the meeting that the results were definite and conclusive. Deflection did take place, and the measurements showed that the extent of the deflection was in close accord with the theoretical degree predicted by Einstein, as opposed to half that degree, the amount that would follow from the principles of Newton. It is interesting to recall that Sir Oliver Lodge, speaking at the Royal Institution last February, had also ventured on a prediction. He doubted if deflection would be observed, but was confident that if it did take place, it

would follow the law of Newton and not that of Einstein.

DR. CROMMELIN and PROFESSOR EDDINGTON, two of the actual observers, followed the Astronomer Royal, and have interesting accounts of their work in every way confirming the general conclusions that had been enunciated.

### "MOMENTOUS PRONOUNCEMENT"

So far the matter was clear, but when the discussion began it was plain that the scientific interest centred more in the theoretical bearings of the results than in the results themselves. Even the President of the Royal Society in stating that they had just listened to 'one of the most momentous, if not the most momentous, pronouncements of human thought' had to confess that no one had yet succeeded in stating in clear language what the theory of Einstein really was. It was accepted, however, that Einstein, on the basis of his theory had made three predictions. The first, as to the motion of the planet Mercury had been verified. The second, as to the existence and the degree of deflection of light as it passed the sphere of influence of the sun, had now been verified. As to the third, which depended on spectroscopic observations there was still uncertainty. But he was confident that the Einstein theory must now be reckoned with and that our conceptions of the fabric of the universe must be fundamentally altered.

At this stage Sir Oliver Lodge, whose contribution to the discussion had been eagerly expected left the meeting.

Subsequent speakers joined in congratulating the observers and agreed in accepting their results. More than one, however, including Professor Newall, of Cambridge, hesitated as to the full extent of the inferences that had been drawn and suggested that the phenomena might be due to an unknown solar atmosphere further in its extent than had been supposed and with unknown properties. No speaker succeeded in giving a clear non-mathematical statement of the theoretical question.

### SPACE "WARPED"

Put in the most general way it may be described as follows. The Newtonian principles assume that space is invariable, that, for instance, the three angles of a triangle always equal, and must equal, two right angles. But these principles really rest on the observation that the angles of a triangle do equal two right angles, and that a circle is really circular. But there are certain

physical facts that seem to throw doubt on the universality of these observations and suggest that space may acquire a twist or warp in certain circumstances as for instance, under the influence of gravitation—a dislocation in itself slight and applying to the instruments of measurement as well as to the things measured. The Einstein doctrine is that the qualities of space hitherto believed absolute, are relative to their circumstances. He drew the inference from his theory that in certain cases actual measurement of light would show the effects of the warping in a degree that could be predicted and calculated. His predictions in two or three cases have now been verified, but the question remains open as to whether the verifications prove the theory from which the predictions were deduced.

### The Fabric of the Universe

From EUCLID to KEPLER, from KEPLER to SIR ISAAC NEWTON we have been led to believe in the fixity of certain fundamental laws of the universe. The centre of a circle was always equidistant from all points of its circumference. The sum of the angles of every triangle was always two right angles. On such belief practice and philosophy were based. The conduct of daily life, the theory of light, and the conception of the ordered arrangement of sun and planets in their courses were based on it. Now, according to the PRESIDENT of the ROYAL SOCIETY, discussing yesterday afternoon the observations made on the solar eclipse last May, "one of the greatest perhaps the greatest, of achievements in the history of human thought has been made and the scientific conception of the fabric of the universe must be changed. In the last report, the theory

of the fixed certainty of space depended on observation. When angles or circles were measured, they confirmed with theory precisely in proportion to the accuracy of the tools employed. But certain extremely difficult cases arose in which theory and observation seemed to conflict, and a series of delicate experiments and elaborate calculations gradually led to a new view, to which the fullest expression was given by EINSTEIN, Professor of Physics in the German University of Prague. According to EINSTEIN, the dimensions of space are not absolute, but relative and shifting. The changes have escaped attention because when space is warped and a circle becomes, say an ellipse the measuring tools at the same time acquire the same warping. But here are certain cases where it might be possible to observe and measure the effects of the warping. Applying his theory to light, he predicted that the oval orbit of the planet Mercury, at the point nearest to the sun, would be found to be changing more rapidly than could be accounted for on the old theory. His prediction was proved correct. Next he predicted that rays of light from stars passing close to the sun on their way to us would be deflected to twice the amount that the principles of SIR ISAAC NEWTON would account for. The English expeditions to Sobral in North Brazil and to the island of Principe devoted their observations on the solar eclipse last May to testing this second prediction, and there is unanimous agreement that they have verified it. A third prediction is yet remains in doubt. But it is confidently believed by the greatest experts that enough has been done to overthrow the certainty of ages and to require a new philosophy that will sweep away nearly all that has hitherto been accepted as the axiomatic basis of physical thought. *The Times*

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## TRADE.

### Trade with India

THE New South Wales Government recently sent a special Commissioner to India to report on Indian trade prospects and the question of appointing a Government agent there.

This officer on his return expressed in very definite terms the opinion that it would be waste of money to set up the established type of Government trade office in India. He advocated either (1) the appointment of a private firm to act as agent for the Government, maintaining sample rooms and finding agents for New South Wales exporters; or (2) the appointment for a definite term of a first-class commercial traveller selected by the

group of manufacturers concerned and paid partly by the Government and partly by the group. The latter recommendation presupposed the possibility of the manufacturers being able to work together for the term of one year in order to test the Indian market for their goods.

It is suggested that the man selected should take over a shipment of goods with him, and tour the provinces, adopting certain necessary safeguards. The Chamber of Manufactures is considering this aspect of the report with a view to advising the Government.

### India's Cotton Trade

The chief features of the import trade in 1918-19 were a large increase in the quantity of cotton twist and

yarn and a correspondingly large decrease in piece goods. It is true that the annual average value of piece goods received during the five war years was almost the same as the pre-war quinquennial average, but the quantity imported decreased by 50 per cent. Twist and yarn were imported to the extent of 58 million lb. as against the low figure of 19 million lb. in the preceding year, and 47 million lb. the pre-war normal. The average delivered value per lb. rose from Rs. 2 5s 6p to Rs. 2 5s 3p. While the twist and yarn imported was much higher than in the two preceding years, the quantity received was small in comparison with the product of the Indian mills. The quinquennial pre-war average of the latter production was 646½ million lb. while the war average has been 666½ million lb. Much interest attaches to the record of the different counts imported and produced.

	1914-15	1915-16	1916-17	1917-18	1918-19
Nov. 1 to 30	1 75	1 85	1 95	2 05	2 15
Nov. 31 to 40	1 95	1 85	1 75	1 65	1 55
Nov. 1 to 40	2 20	2 10	2 00	1 90	1 80
Above No. 40	1 00	1 00	1 00	1 00	1 00
100 per cent do	52 9	52 9	52 9	52 9	52 9
W. 100	52 9	52 9	52 9	52 9	52 9
Total	117 4	117 4	117 4	117 4	117 4

From this table it will be seen that the imports of the coarser counts up to 20s increased, the quantity imported being nearly as high as the pre-war average, but the production of these counts in the Indian mills decreased to 402 million lb. from 478 million lb. in the pre-war quinquennium. This production has been increased very largely since the outbreak of the war. The new war not only reflects the diminution of the old export of yarn but also that the spinning mills that have in the last few years sprung up in China now both supply their own market of hand looms and have a large surplus for export. What they send to India (over one million lb. last year) reaches the hand loom weaver who are expanding as a result of their craft as a result of the domination of mill competition. The development of supply from China, as a result of productive capacity there is sure to grow.

In count 21s to 30s there was an increase both in imports and production, but the war ended with imports reduced by 42 per cent and production increased by 28 per cent over the pre-war average. The imports of counts 31s to 40s were 23 per cent below the pre-war average, while the production was 11 per cent higher.

In regard to the sources of supply it is of great significance that Japan supplied 72 per cent of the total shipments—chiefly counts 16s to 20s and 31s to 50s as against 22 per cent in the preceding year, and

only 1 per cent in pre-war days. The imports from the United Kingdom decreased to one-fourth of the total shipments as compared with 77 per cent in 1917-18 and no less than nine tenths before the war.

### British Trade with China

The first conference of the British Chambers of Commerce in China is an event of unprecedented importance in the annals of British trade with China. No fewer than 15 Chambers besides Hongkong were represented by delegates from so far afield as Kharbin, Mukden, Chungking, and Canton. Sir John Jordan, the British Minister, came from Peking especially to meet the delegates and at the opening and closing of the session contributed addresses which were inspired by his ripe experience of 45 years in China.

The most notable event was the formation of a central federation with headquarters at Shanghai of all the British Chambers of Commerce in China, which will meet annually and speak with a united voice for the whole British Mercantile community on subjects affecting British and Chinese interests. The importance of this move is conspicuous. Hitherto the various British organizations existing in the chief ports of China though doing much good work acted independently with the result that there was occasional divergence of opinions and weakness of counsel.

Among other resolutions may be specially noted a strong recommendation that a trade indemnity fund be used to establish a British educational institution for the Chinese in China and a travelling scholarship to enable Chinese to visit Great Britain.

As regards opium the conference adopted a resolution expressing the opinion that the British Government should be urged to give immediate effect to the International Opium Convention of The Hague of 1912, without waiting for its ratification by other countries, especially with the view to checking the export of morphine and kindred products. This export, Sir John Jordan believed was far less than it was popularly supposed to be, and he declared that China had no ground of complaint against Great Britain. The British Minister added that the cultivation of opium was ripe in nearly every province and quoted the saying of the enlightened Governor, Yen Hsi-shan of Shansi, that most of his revenue went to keeping out smuggled opium from Shansi.

Among resolutions of more purely local interest one pressed for dollar coinage in the place of sycee, another for adequate copyright and trade-mark protection, another called attention to the prevalence of piracy in South China, which is disorganizing trade.—*The Times*.

### Commerce with Germany

Baron Beyens, who was the Belgian Minister to Germany at the time of the outbreak of war in the course of his impressions, makes the following remarks on the subject of resuming commercial relations with Germany —

Germany offers us certain manufactured goods of which we have need, at prices remarkably lower than those of similar products of foreign origin. The profits of such business are further augmented in our favour by the fall in value of the mark and by the state of the exchanges. Are we then going to refuse to buy these goods in order to get them at second hand when they are presented to us by sellers of neutral countries after they have taken the trouble to camouflage their original from our eyes? Are we going to continue to provision ourselves by choice from our friends, the Americans, and the British paying more for the goods and helping still further to lower the value of our currency? That is the whole problem. Be it observed that the British and Americans, being eminently practical people have no scruples in matters of commerce and began from the moment the armistice was signed to flood the Rhine country and the rest of Germany with their own products. At the same time they laid violent hands on raw materials — a doubly advantageous operation. Another reason for buying what we lack from the Germans, is that they are our debtors, and that they would thus procure from us without depriving us of anything the means of acquitting themselves of the debt they owe us.

An excessive pessimism in regard to the German peril seems to me baseless, but any excess of confidence in the other direction would be a serious imprudence. Let us always remain watchful and vigilant towards our enemies.

For the moment our watchmen are the members of the Allied Missions which control the

execution of the Treaty. Let me express the hope that to their's will soon be added, by the resumption of official relations with the republican empire, the surveillance of our diplomatists and consuls. Through the eyes of their agents the Allied Government will be better able to learn what importance to attach to the events of which Germany in the process of transformation must inevitably be the theatre and what is likely to be the effect of these events upon the *moral* of the German people.

### The Empire's Trade

The Trade and Industries Committee of the Royal Colonial Institute observe that one way of combating the introduction of foreign standards, is to encourage Dominion and Colonial students to enter British factories, and to get their training there as apprentices and as engineers. American manufacturers have recently inserted advertisements in Australian newspapers offering to train on very attractive terms Australian young men as engineers and industrialists. It is to combat this propaganda that the Committee has taken up energetically the work of facilitating the coming of students from all the Dominions to this country, to gain their experience and training. What has been said of mines and power stations is almost equally applicable to almost every other industry. There is nothing to prevent all the Dominions and many of the Colonies making gigantic strides in the establishment of manufacturing industries, and indeed the war has shown that it must be part of the policy of our Governments to ensure the starting and growth of essential and key industries. It is the view of the Committee that every encouragement should be given to such a policy for the reason that the Empire will become strong in its defences and its economic structure in so far as its various units become self supporting

## FINANCE.

### Imperial Bank for India

A special meeting of the share holders of the Bank of Bengal will be held in February 1920 for the purpose of considering a scheme for the formation of an Imperial Bank of India by the amalgamation of the three Presidency Banks of Bengal, Bombay and Madras. Sir Norcot Warren, Secretary and Treasurer of the Bank of Bengal, after a preliminary explanation of the advantages, gives the following outline of the proposed scheme —

The total authorised capital with the Reserve Fund of the Imperial Bank of India will be Rs 15,00,00,000,

of which the authorised share capital will consist of 225,000 shares of Rs 500 each representing Rs 11,25,00,000 and the Reserve Fund Rs 3,75,00,000. At the present time the fully paid up shares of the three Presidency Banks are as follows —

Bank of Bengal, 40,000 shares of Rs 500 each	Rs 2,00,00,000
Bank of Bombay, 20,000 shares of Rs 500 each	1,00,00,000
Bank of Madras, 15,000 shares of Rs 500 each	75,00,000
Total	3,75,00,000



It is proposed that the paid up capital of the Imperial Bank shall be Rs 5,62,50,000 and that the Reserve Fund shall be increased to Rs 3,75,00,000

To effect this —

	Share capital Rs	Reserve Rs	Total Rs
The Bank of Bengal has to contribute	3,00,00,000	2,00,00,000	5,00,00,000
The Bank of Bombay has to contribute	1,50,00,000	1,00,00,000	2,50,00,000
The Bank of Madras has to contribute	1,12,50,000	75,00,000	1,87,50,000
	Total		9,37,50,000

### III. REDEMPTION

For this purpose 150,000 new shares of the nominal value of Rs 500 each will be issued by the Imperial Bank of India on which the sum of Rs 125 will be payable

Out of this total issue, 80,000 shares will be allotted at par to the registered shareholders of the Bank of Bengal, 40,000 shares will be allotted at par to the registered shareholders of the Bank of Bombay and 30,000 shares to the registered shareholders of the Bank of Madras at the price of Rs 225 per share. The result of this will be that each shareholder in the Bank of Bengal will exchange his present holding of shares for an equivalent number of fully paid shares in the Imperial Bank and, in addition, will receive two new shares at par of the Imperial Bank for every share so exchanged on which latter new shares Rs 125 will be immediately called up and payable. Shareholders of the Bank of Bombay will make a similar exchange and receive a like allotment, and shareholders in the Bank of Madras will also exchange on the same terms and receive a like proportion of shares Rs 125 called up at the price of Rs 225 per share. All future calls on the partly paid shares of the Imperial Bank will be payable at par.

### III. GOVERNING BODY

2. The governing body of the Imperial Bank will be a Central Board, under which will be local Boards at the three Presidency towns of Calcutta, Bombay and Madras. Such Central Board will consist of General Manager or in the first instance of two General Managers, the Controller of Currency and the President and Vice-President of each Local Board and the Secretaries and Treasurers of the Local Boards, the latter having no voting power. The general manager or general managers will be appointed by Government

on the nomination of the Central Board the term of the office being for five years. The Controller of Currency will be an ex officio member of the Board and will have power to require the Board to hold up action for orders of Government on any matter which he might consider to be of vital importance as affecting the financial policy of Government or the safety of its cash balances. The functions of the Central and Local Boards will be governed by bye laws which as in the case of the present bye laws regulating the administration of the three Presidency Banks will be subject to the approval of Government. The function of the Central Board will be, as indicated above to deal with matters of general policy, and it will have general power of control over the Local Boards and also be responsible for the settlement of any disputes which may arise between the respective Local Boards and would determine the distribution of funds, fixation of the Bank rate and also be responsible for the publication of the Bank's weekly statements. The general revisions of salaries of the establishment employed under the Local Boards or increase in appointments will be subject to the sanction of the Central Board though it is intended that it should be given power to delegate means of bye laws and of such matters to the Local Boards for their control.

### CENTRAL BOARD CONSTITUTION

The constitution of the Central board will be designed to secure on its adequate representation of the interests of the Local Boards and also of the shareholders and further, as it would not, in practice, be feasible for a Board so constituted to meet with sufficiency to administer the current business falling within its sphere it will be arranged that these functions should ordinarily be discharged on its behalf by a Managing Board or working Committee consisting of the general manager or general managers, the Controller of Currency and such other members of the Central Board who may be available at the place of meeting. Ordinarily meeting of the full Central board will be summoned not less frequently than once a quarter alternatively at Bombay and Calcutta additional meetings being summoned whenever necessary and any Local Board will be entitled to requisition a meeting of the full Central Board, at any time for the purpose of considering any special matters. The Managing Board on the other hand, would meet frequently and would be armed with the full administrative powers of the Central Board, subject to any special instructions. As regards the Local Boards of Directors at Calcutta, Bombay and Madras it is proposed that they should respectively

remain as at present constituted and should continue to deal with the ordinary day to day banking business in their respective territories supervising the work of the branches constituted therein, though it may eventually be found desirable to make certain readjustments of territory between the three Boards and further, with the development of business, to constitute new Local Boards of Directors at such centres as Rangoon and Cawnpore. The Directors of each Local Board will be elected by the shareholders whose names are borne on the Local Register.

#### AN OFFICE IN LONDON

3 The Imperial Bank of India will open an office in London which, while not competing with the Exchange Banks in ordinary Exchange business would be permitted to conduct business on behalf of the Bank's constituents to rediscount bills of Exchange for the Exchange Banks and to conduct such business as the Secretary of State might give it and generally to represent Indian commercial interests in London.

4 The Imperial Bank will take steps to increase the number of its branches and the intention in this respect is within a period of five years, to open 100 new branches or thereabouts and in this connection Government will bear the right of nominating the location of one out of every four new branches.

5 In the event of the scheme being adopted Government have intimated their willingness to abolish the Reserve Treasury and to place the whole of their funds with the Bank.

6 The Imperial bank will retain management of the Public Debt Works but it is contemplated that a large measure of decentralisation will be introduced therein. In the new legislation which must be necessarily introduced for bringing the Imperial Bank of India into being, the opportunity will be taken, while not altering fundamentally the present general character of the bank's business, to modify certain of the present restrictions which in practice have been found to be unnecessarily rigid.

On the legislation being introduced by the Government of India and adopted for the constitution of the Imperial Bank of India it may be necessary for the three Presidency Banks to convene further meetings for the passing of a Special Resolution for the winding up voluntarily of the three Presidency Banks and for the transfer of the respective undertakings to the Imperial Bank.

#### British Finance

We referred last month to the speech of the Chancellor of the Exchequer, Mr Chamberlain, which indicated

that the financial situation in England gave no cause for panic. Mr Asquith has criticised the speech as follows —

"This financial statement means, in the first place, on the part of the Chancellor of the Exchequer, perhaps the grossest financial miscalculation in the whole annals of our history. At least, I have never heard of anything approximating to it. Having made this unexampled and almost inconceivable error only six months ago, in estimating the financial position of the present year, he proceeded to present a hypothetical Budget for the future with very confidence — a Budget I think, of some eight hundred millions upon each side of the account, which shows a small but a very substantial surplus. I speak to you as an old hand in these matters and I warn you and I warn my countrymen outside that hypothetical Budget is not worth the paper on which it is written. Even if all the receipts which it assumes, regular or casual come in it is hopelessly vitiated by the fact that it takes no account of what is, I believe, all important in these matters, the inevitable increase upon necessary funds of expenditure. There are forms of expenditure which we ought to curtail, which we must curtail which are non remunerative and non productive, and upon the drastic reduction of which the whole of our financial future depends.

"There was only one way in which the Chancellor of the Exchequer could deal with the situation and that was by frankly imposing additional taxation. We could not get rid of the real incubus upon our future prosperity without taxation, and taxation must take — because we could not go on increasing the burden upon the necessities of life — one of two forms. There were only two choices — either an increased income tax, which is already very high or some form of duty upon realized or realizable wealth. He was led to see that the Government were going to have an inquiry as to whether it was possible to tax, not the war profits which had already been taxed to a large extent but war fortunes. He appealed as he had unwisely long ago, to extend the ambit of that inquiry to see whether or not it was possible, consistently with justice, equity, and sound finance, to include within its scope the question of the possibility of putting a tax upon realized wealth as a whole. No one was more aware than he was of the difficulties of such a proposal —

#### India's Fiscal Policy

The Joint Parliamentary Committee on Indian Reforms have made the following recommendations regarding the Fiscal Policy for India —

The Committee have given most careful consideration to the relations of the Secretary of State with the

## MOTOR NOTES

The Daimler Company, Ltd. has received the following letter from Captain the Hon. Sir Charles Wentworth Fitzwilliam, K. C. V. O., Crown Iquerry to the King: "I was desired by His Majesty to express to you his appreciation of the running of the Daimler cars used by their Majesties on their journey from Balmoral to London on Oct. 3 and 4. Both cars, which have been in constant service since they were delivered by you some years ago, ran the distance of 541 miles without the least trouble of any sort. The second car, a brake, was for luggage only so their Majesties depended entirely on the reliability of one of their Daimler limousines."

Referring to a statement that "there are roughly three American cars being sold in South Africa for one British." *The British and South African Export Gazette* says: "Why there were only four British cars imported into the Union during the whole of last year and a paltry three dozen in 1917. British cars have not been in competition at all, but they are coming back and then we shall see what British enterprise can do to regain the former business when the market was worth over £1,000,000 per annum, and Great Britain held the lion's share."

Unfortunately no country is manufacturing enough to meet its own needs. On the other hand in Britain

they are not preparing even to meet their own demands, still less those of the overseas markets. But no doubt the American production will shortly be shared between the home and foreign markets even though the former be kept short for a while. There is something more than a possibility also, that the present tax may be removed in May. The American naturally would then take fullest opportunity of the opening thus offered. British schemes of quantity production compared with those of the United States and some Continental countries, are inadequate. Far too many of their makers aim at the restricted market for the high priced luxury cars. Even before the war there were sufficient firms of established reputation to meet the demand. As for the newcomers one is at a loss to indicate their possible markets.

The income tax statistics should indicate that there are not enough people able to pay between £1,500 and £2,000 for a car and to maintain it. There are some 50,000 with incomes of £5,000 or over, most of them being in the £5,000 class. With the increased taxation and the lower value of the sovereign the £5,000 a year man can hardly buy one of the costliest cars. He could have maintained a Rolls-Royce in 1914; today the £1,200 car corresponding to the £500-600 prewar vehicle, is his limit.

## NEWS AND NOTES.

We are glad to announce that owing to the reduction in the price of paper the annual subscription for 'Commerce and Industries' will be reduced from Rs. 10 to Rs. 8 post free and the half yearly subscription to Rs. 5. This will take effect from January 1920. We propose also to increase the bulk of the Journal and make it increasingly useful and attractive in several ways. We regret the delay in the issue of the Journal but in view of the change of the printers we hope to be more prompt in future.

Mr. A. Y. G. Campbell, C. I. E., I. C. S., Director of Industries, Madras, is appointed Controller of Munitions, Madras circle.

The total value of the imports into Calcutta from foreign countries for eight months from 1st April to 30th November 1919 is Rs. 512,156,741, while that of the exports for the same period is Rs. 905,689,303.

In connection with the Industrial Courts Bill, the members of the new Permanent Court are Sir Warrender Mckenzie, President, Mr. I. H. McLeod, Chairman and six members which include Mrs. Violet Murkham and Miss Cecile Matheson.

The following notification is issued. The Governor General in Council is pleased to direct as follows—(1) The twelve eight anna and four anna pieces specified in section 6 of the Indian Coinage Act shall henceforth be coined at the Mint and issued. The eight anna coin shall be circular the diameter being 26 millimetres. The rim shall not be milled. The four-anna coin shall be a coin with a waved edge with eight crests and eight hollows, its greatest diameter being 25 millimetres. The rim shall be milled.

During the month of November 1919, the Calcutta and Bombay Mints coined 1,05,00,025 whole rupees.

The prohibition of the export of oil and oil seeds from India was withdrawn on December 6.

Mr C. A. McCurdy, Parliamentary Secretary to the Ministry of Food, addressing a Conference of Labour members in London said there would be a serious shortage of essential food stuffs in 1920. Butter and cheese were almost disappearing and the supplies from Australia were certain to decrease owing to the drought. The supplies of tea had decreased though the consumption had increased and there was no prospect of the world's supplies of sugar balancing with the demands.

The Government of India have issued the following Press Communiqué:—Firms or institutions importing gold into India have hitherto been paid when it is acquired by Government at the rate in force on the date of shipment or under certain conditions, at the rate prevailing at the time the gold was purchased for shipment. Certain practical difficulties have arisen in working the latter alternative and it has now been decided to substitute the following arrangement for it. The Controller of Currency or in the case of gold delivered at Bombay the Deputy Controller of Currency will be prepared to contract on behalf of the Government of India to pay for the gold on delivery at the acquisition rate prevailing at the time when the contract is entered into. Firms or institutions wishing to take advantage of the arrangement must undertake to ship gold within 30 days of making the contract, but failure to ship within 30 days will not operate to make the contract void or involve other penalty provided that it is shown to the satisfaction of the Controller of Currency that the delay was due to no fault of the Contractor. Gold now ordered from India but by offices in London or New York for Branches or firms in India should be contracted for with the India office who will be prepared to make similar arrangements. In case of failure to make a contract gold will be paid for on the basis of the rate in force on the date of shipment.

In the House of Commons Sir Auckland Geddes, questioned with regard to the alleged collapse of shortage and the supply of domestic coal, denied that there was a shortage and said that the trouble was due to lack of transport for which the application of eight hours' day was responsible. The Board of Trade announces that the coal output for the week ended December 6, was 4,308,424 tons, the highest since May.

The *Daily Mail* states that Doctor Arnold, Professor of Metallurgy in Sheffield University, has discovered a new steel unrivalled in hardness and with cutting powers far beyond those of all existing qualities of high speed steel.

A Press communiqué issued from Delhi says:—

The following note regarding the objects of the Rouble Notes Ordinance and the procedure to be observed in the deposit and the export under prescribed conditions of rouble notes is published for general information. The import and export of rouble notes were prohibited about two years ago with a view to check the unhealthy speculation which was then prevailing. The Government of India have now received information that rouble notes are being manufactured by hundreds of millions without any currency backing and that in spite of the prohibition of import these worthless notes have been smuggled in considerable quantities into India, where it is apprehended that they will be used for furtherance of Bolshevik propaganda. They have accordingly by the Rouble Notes Ordinance declared the possession of Rouble Notes to be illegal but, in order to protect the innocent holders of such notes they have made provision for the temporary deposit or export of existing stocks in accordance with the procedure outlined below.

The Ordinance provides that no person shall have in his possession any Rouble Note after the expiry of six weeks from the date of its commencement. During the period all holders of such notes will be required either (A) to deposit holdings in a Government Currency Office or treasury without compensation or (B) to export them to any place outside India and if the notes are not exported within the specified period they should be deposited at the Currency Office at the place where there is such an office and elsewhere at the Government treasury, and these Offices will grant a receipt for the notes. As far as possible notes should be tendered in sealed boxes or covers bearing the tenderers' seal.

It is announced that a Press Communiqué issued from Delhi for the information of officers of Government that the rate of 2s 4d will be applied for conversion of leave allowances and pension earned from 16th December 19 and drawn at or through the Home Treasury or in a Colony in which the Indian Government rupee is not a legal tender furlough allowances fixed in sterling but drawn in India will also be converted at 2s 4d per rupee with effect from the same date.

The Government of India Bill has passed the House of Commons and the House of Lords. In the Lords, some minor amendments were made without

affecting the Bill substantially and the House of Commons has accepted them without discussion.

Mr Balfour presided and Mr Montagu and members of the India Council and prominent Anglo-Indians were present at a lecture which Sir Jagdish Chandra Bose delivered at India Office. Sir Jagdish stated that he had invented an apparatus enabling the observation of the growth of plants which was only about one six thousand of the rate of the process of a snail. He showed photographs of Euglenoid in his institute in Calcutta which by previously anaesthetising he had successfully transplanted. The difficulty of transplantation lay in the shock of removal and in the nerve effects to which the plants were equally subject as animals. Mr Balfour referred to Sir Jagdish Bose's reputation in England and the interesting contribution he had made to Science.

It has practically been decided, says the *Bombay Chronicle* to start experimentally a Postal Air Service between Bombay and Karachi in connection with the incoming and outgoing mail steamers at Bombay.

The paper currency of the world presents problems which are many and complex but if we are to believe a story which is going the rounds of the London papers the British soldier in Palestine cannot be credited with any real desire to remedy matters. It is said that in this country when he found the possession of desirable worldly goods combined with a negligible knowledge of English he found labels of various acceptable currency and it was only when Ticker's plum and apple labels were presented at the bank that his ingenuity was discovered. It is a story which should be taken with rather more than the proverbial grain of salt but possibly even an English jam label is as valuable or valueless, as the millions of Russian rouble notes which have been hoarded in India in the vain hope that a new form of Russian Government will recognise the liabilities of the bolsheviks — *The Times of India*.

Sri Rajendra Nath Mookerjee K C I E of Messrs Martin and Company Calcutta has been made a life member of the Institute of Mechanical Engineers.

At a meeting of the members of the Indian Merchants' Chamber and Bureau Bombay the following resolution was unanimously passed: "That this meeting approves of holding a joint Industrial and Commercial Conference towards the end of January next in Bombay."

On the motion of Mr K S Iyer a Reception Committee was formed with Mr Jehangir Bomanji Peti as Chairman and the Honourable Mr Purshottamdas Thakordas, the Hon Mr Mahomedbhai Hidayat Ali Lali, Mr Humayun Cawisji Adnawalla and Mr Sitanath Poddas as Vice Chairmen.

Mr Kothari moved that Messrs Amrimal Sarabhai, S R Bomanji, Laxmidas R Tarsi, Fazulbhai Ibrahim, Kupibhai H Vaid and F K Mehta be appointed Hon Secretaries of the said joint Conference.

The motion was passed unanimously.

A joint Conference of the representatives of the various Chamber of Commerce will meet in Calcutta next month to discuss matters of commercial interest. The Chambers of Bombay, Madras, Burma, Kurrum, Cawnpore and other commercial centres are sending representatives and it is likely that the Chambers of Commerce of Ceylon and Singapore will also be represented. It is understood that at the Conference the question of forming an Associated Chamber will be considered.

At an annual meeting of the Madras Chamber of Commerce held on Dec. 16 Sir Gordon Fraser in moving the adoption of the report said—It has not taken the Germans long to resume their efforts to trade with India, and I have seen letters written from Germany to pre-war clients written in most friendly tone with personal compliments to those with whom they came in personal touch when trading in the pre-war days. There is no doubt that great efforts will be made to secure as large a share of the Indian trades as possible and I can only reiterate the hope I expressed last year, that such precautions will be taken by Government as to ensure that Germany never again obtains the influence within the British Empire that she enjoyed at the time of the outbreak of war. In this respect we look for some definite pronouncement from Government as to the course of action to be taken.

Referring to the difficulties of the export trade he said: "First we have the present fluctuations and rapid advance in the rupee exchange and when this is to end no one can foresee. We are waiting with great interest the report of the Special Finance Commission now sitting in London, but with the price of silver over the value of the rupee and the balance of trade so heavily in favour of India, it is difficult to see how the rise in the rupee can be prevented. Referring to the development of Railways, the president said that he did not put the opening of new railway lines in the forefront, but he trusted that no expense and time would be spared in bringing our rolling and

locomotive stock on the existing railways up to date. They wanted more locomotive wagons and coaches. Referring to the heavy contribution of revenue paid by the Madras Government to the Government of India, he said, that in the case of the Imperial taxes, the Provincial Government simply acted as agents and the fact that Bombay and Calcutta collected larger amounts in income tax import duties and other imperial taxes than Madras was no reason why Madras should be called upon to hand over to the Government of India such a large percentage of her purely provincial revenue.

Speaking on enemy aliens Sir Fraser said, that unless some definite line of policy was laid down by Government, they would have India inundated with German traders before they quite knew where they were.

The report mentions that the ensuing Conference of Chambers of Commerce at Calcutta will be attended by H. E. The Viceroy, and the Madras Chamber of Commerce will be represented at the Conference by the Hon. Sir Gordon Fraser, Mr. I. I. Simpson and Mr. A. P. Symonds.

The Royal Assent to the Government of India Bill has been signified.

It has been announced by the Government of India that the Committee to consider the creation of an All India Chemical Service will consist of the following gentlemen—

1. Professor I. F. Thorpe, C. B. E., D. Sc., Ph. D., F. I. C., I. R. S., Professor of Organic Chemistry in the Imperial College of Science and Technology, London.

2. Dr. K. C. Caldwell, Ph. D., F. I. C., Principal, Patna College.

3. M. R. W. Davies, I. C. S., District and Sessions Judge, North Arcot District, Chittoor.

4. Dr. W. Harrison, Imperial Agricultural Chemist, Research Institute, Pusa.

5. Sir P. C. Ray, K. C. I. E., D. Sc., F. R. S., Palit Professor of Chemistry, University College of Science, Calcutta.

6. D. J. L. Simonsen, F. I. C., F. A. S. B., Forest Chemist, Forest Research Institute and College, Dehra Dun.

7. Dr. J. J. Sudborough, Ph. D., F. I. C., Professor of Organic Chemistry, Indian Institute of Science, Bangalore.

Of these, Prof. Thorpe will be the President and Dr. Simonsen the Secretary and the Committee.

The examination for the Government Diploma in Accountancy of the Sydenham College of Commerce

and Economics, Bombay, will be held in the premises of the College at Bombay from the 12th to 17th April 1920. Applications in the prescribed form should be forwarded to the Secretary, the Accountancy Diploma Board, 65 Appollo Street, Bombay, on or before the 1st January 1920 with a fee of Rs. 50 per candidate through the Principal of the College or institute to which they belonged. The examination will be held daily from 2.30 p.m. to 5.30 p.m. on the 12th, 13th and 14th April 1920 in Accountancy and Auditing in 3 papers, viz. general Accounts, special Accounts and Auditing, on the 15th, 16th and 17th April 1920 in Mercantile Law in 3 papers viz. Law of Contracts and Arbitration, Company and Insolvency Law, Negotiable Instruments, Charter Parties, Bills of Lading and Insurance.

Tea industry has always been and is bound to be as time goes on, a very profitable concern and a safe source for the investing public. We are glad that during the recent industrial awakening in India tea industry has occupied a very prominent place. One such floated in Calcutta, is the Mohanpur Tea Co., Ltd., in advertisement of which appears elsewhere. The Managing Directors Messrs P. Banerji & Co., are well known in Calcutta and under their management the Simna Tea & Trading Co., Ltd., which, though started in 1918, has made remarkable progress. We are glad to note that this new company under review is a purely Indian concern and has, in addition to a strong board of directors, secured some well known tea experts also. The land has been selected by Mr. Kaliprasanna Chakravarti, a tea expert of 40 years experience and the initial expense is very small owing to the favourable terms granted by the Imperial Tea Companies. As the tea companies are paying good dividends, some even up to 210 per cent considering the rising market for tea and the favourable conditions under which this company has been floated, we are sure that a fair cent per cent, as anticipated by the Directors can reasonably be expected and have no hesitation in recommending it to the public as a safe and profitable source for investing a part of their surplus income.

#### NOTE

In page 4, line 18, please read Sheth Ramji Cattranji as Sheth Ramji Callianji, also, in page 13, read Mr. Sinha B. Sc. (III) as, Mr. Sinha B. Sc. (III) etc.

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